

Access DB# 70067

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Hwei-Sin Payer Examiner #: 67809 Date: 7/1/02
 Art Unit: 3724 Phone Number 308-1405 Serial Number: 09/160,991
 Mail-Box and Bldg/Room Location: CP2-11A08 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

 Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Cutting die

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

STAFF USE ONLY

Searcher: John Sim
 Searcher Phone #: 308-4836
 Searcher Location: ELC3700
 Date Searcher Picked Up: 7/12/02
 Date Completed: 7/12/02
 Searcher Prep & Review Time: 120
 Clerical Prep Time: _____
 Online Time: 45

Type of Search

NA Sequence (#) _____
 AA Sequence (#) _____
 Structure (#) _____
 Bibliographic _____
 Litigation ☒ _____
 Fulltext _____
 Patent Family _____
 Other _____

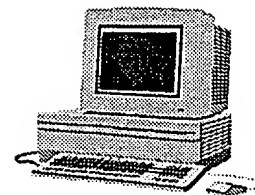
Vendors and cost where applicable

STN _____
 Dialog ☒ _____
 Questel/Orbit _____
 Dr. Link _____
 Lexis/Nexis _____
 Sequence Systems _____
 WWW/Internet ☒ _____
 Other (specify) _____

EIC3700/2900

Search Results

Feedback Form (Optional)



Scientific & Technical Information Center

The search results generated for your recent request are attached. If you have any questions or comments (compliments or complaints) about the scope or the results of the search, please *contact the EIC searcher who performed your search (or either of us)*:

John Sims, Team Leader, 308-4836, CP2-2C08
or Jeanne Horrigan, Searcher, 305-5934

Voluntary Results Feedback Form

➤ *I am an examiner in Workgroup:* *Example:*

➤ *Relevant prior art found, search results used as follows:*

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ *Relevant prior art not found:*

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Search results were not useful in determining patentability or understanding the invention.

Other Comments:

3/7/1 (Item 1 from file: 344)
DIALOG(R) File 344:CHINESE PATENTS ABS
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4192105

CUTTING DIE AND METHOD OF FORMING

Patent Assignee: BELNER INTERNATIONAL (US)
Author (Inventor): ZHANG YU (US); CHERNG TZYH-CHANG (US)
Number of Patents: 040
Patent Family:

CC	Number	Kind	Date	
CN	1222106	A	19990707	(Basic)
AL	9729879	W1	19970821	
AM	9729879	W1	19970821	
AP	9729879	W1	19970821	
AT	880423	R1	19981202	
AU	2051797	A1	19970902	
AZ	9729879	W1	19970821	
BA	9729879	W1	19970821	
BB	9729879	W1	19970821	
BG	9729879	W1	19970821	
BR	9729879	W1	19970821	
BY	9729879	W1	19970821	
CA	2245864	AA	19970821	
CH	880423	R1	19981202	
CN	1071168	B	20010919	
CU	9729879	W1	19970821	
CZ	9729879	W1	19970821	
DE	880423	R1	19981202	
DK	880423	R1	19981202	
EE	9729879	W1	19970821	
EP	880423	A1	19981202	
ES	880423	R1	19981202	
FI	880423	R1	19981202	
GB	880423	R1	19981202	
GE	9729879	W1	19970821	
HU	9729879	W1	19970821	
IL	9729879	W1	19970821	
IS	9729879	W1	19970821	
IT	880423	R1	19981202	
JP	9729879	W1	19970821	
KE	9729879	W1	19970821	
KG	9729879	W1	19970821	
KP	9729879	W1	19970821	
KR	9729879	W1	19970821	
KZ	9729879	W1	19970821	
LC	9729879	W1	19970821	
LI	880423	R1	19981202	
LK	9729879	W1	19970821	
LR	9729879	W1	19970821	
LS	9729879	W1	19970821	
LT	9729879	W1	19970821	

Application Data:

CC	Number	Kind	Date
*US	602379	A	19960216
CN	97193102	A	19970214

?

6/7/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

011446936 **Image available**
WPI Acc No: 1997-424843/199739

**Manufacture of dies for cutting various stock materials - forming blade
extending outward from die surface by cladding blade material onto die
surface and shaping clad blade**

Patent Assignee: STEVENS INT (STEV-N); BERNAL INT INC (BERN-N)

Inventor: **CHERNG T**; ZHANG Y

Number of Countries: 074 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9729879	A1	19970821	WO 97US2482	A	19970214	199739 B
AU 9720517	A	19970902	AU 9720517	A	19970214	199751
EP 880423	A1	19981202	EP 97908663	A	19970214	199901
			WO 97US2482	A	19970214	
CN 1222106	A	19990707	CN 97193102	A	19970214	199945
EP 880423	B1	20011128	EP 97908663	A	19970214	200201
			WO 97US2482	A	19970214	
JP 2001525732	W	20011211	JP 97529562	A	19970214	200204
			WO 97US2482	A	19970214	
DE 69708604	E	20020110	DE 608604	A	19970214	200211
			EP 97908663	A	19970214	
			WO 97US2482	A	19970214	
ES 2166980	T3	20020501	EP 97908663	A	19970214	200236

Priority Applications (No Type Date): US 96602379 A 19960215

Cited Patents: 5.Jnl.Ref; DE 2907325; JP 57058990; JP 6023448; JP 62224527;
JP 63040621; US 3952179

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 9729879 A1 E 24 B23P-015/40

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU
CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV
MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG UZ
VN

Designated States (Regional): AT BE CH DE DK EA ES FI FR GB GR IE IT KE
LS LU MC MW NL OA PT SD SE SZ UG

AU 9720517 A B23P-015/40 Based on patent WO 9729879

EP 880423 A1 E B23P-015/40 Based on patent WO 9729879

Designated States (Regional): AT CH DE DK ES FI GB IT LI

CN 1222106 A B23P-015/40

EP 880423 B1 E B23P-015/40 Based on patent WO 9729879

Designated States (Regional): AT CH DE DK ES FI GB IT LI

JP 2001525732 W 20 B23P-015/40 Based on patent WO 9729879

DE 69708604 E B23P-015/40 Based on patent EP 880423

Based on patent WO 9729879

ES 2166980 T3 B23P-015/40 Based on patent EP 880423

Abstract (Basic): WO 9729879 A

A cutting **die** [13,14] is formed by scanning a laser [10] beam
along a path corresponding to a blade [14] pattern. A selected powder
[16A] is introduced to build up an integral blade [14] of high grade,
and hard wearing material on the relatively softer **die** body [13].

The final blade shape is machined or produced by electro discharge
machining or milling, further hardening by heat treatment being
optional.

ADVANTAGE - Improved process for manufacturing a cutting **die**
having hard, long life blades of high grade steel at substantially the
same cost as those formed integrally of lower grade steel.

Dwg.1/6

Derwent Class: P52; P56

International Patent Class (Main): B23P-015/40

International Patent Class (Additional): B21D-037/20

6/7/2 (Item 2 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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011446935 **Image available**
WPI Acc No: 1997-424842/199739

Forming cylindrical cutting dies - by machining blade onto soft material blank, then laser heating blade and cooling to harden blade without distortion or cracking

Patent Assignee: STEVENS INT INC (STEV-N); BELNA INT CORP (BELN-N); BERNAL INT INC (BERN-N)

Inventor: **CHERNG T** ; ZHANG Y

Number of Countries: 072 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9729878	A1	19970821	WO 96US9907	A	19960611	199739 B
AU 9661096	A	19970902	AU 9661096	A	19960611	199751
EP 880422	A1	19981202	EP 96918427	A	19960611	199901
			WO 96US9907	A	19960611	
CN 1268914	A	20001004	CN 96180217	A	19960611	200067
JP 2001521445	W	20011106	WO 96US9907	A	19960611	200203
			JP 97529309	A	19960611	
EP 880422	B1	20011212	EP 96918427	A	19960611	200204
			WO 96US9907	A	19960611	
DE 69618017	E	20020124	DE 618017	A	19960611	200215
			EP 96918427	A	19960611	
			WO 96US9907	A	19960611	
ES 2167570	T3	20020516	EP 96918427	A	19960611	200239

Priority Applications (No Type Date): US 96603039 A 19960215

Cited Patents: 3.Jnl.Ref; DE 2013674; JP 1184218; JP 6136431; JP 57063632; US 4608895; US 5417132; WO 9101386

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 9729878	A1 E	24	B23P-015/40	
Designated States (National): AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN				
Designated States (Regional): AT BE CH DE DK EA ES FI FR GB GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG				
AU 9661096	A		B23P-015/40	Based on patent WO 9729878
EP 880422	A1 E		B23P-015/40	Based on patent WO 9729878
Designated States (Regional): AT CH DE DK ES FI GB IT LI				
CN 1268914	A		B23P-015/40	
JP 2001521445	W	20	B23D-035/00	Based on patent WO 9729878
EP 880422	B1 E		B23P-015/40	Based on patent WO 9729878
Designated States (Regional): AT CH DE DK ES FI GB IT LI				
DE 69618017	E		B23P-015/40	Based on patent EP 880422
Based on patent WO 9729878				
ES 2167570	T3		B23P-015/40	Based on patent EP 880422

Abstract (Basic): WO 9729878 A

A cutting **die** is produced by: (a) milling the **die** surface to form cutting blades from the surface; and (b) hardening the blades formed using a heat source to scan the blade, with an intensity sufficient to cause hardening of the blade material.

USE - In the manufacture of cutting dies or similar, used for cutting various stock materials, including paper, plastic, metal, or others, into predetermined shaped blanks.

ADVANTAGE - Allows the dies to be manufactured from a soft material and then heat hardened without distortion or marking, the dies formed firstly by a low cost milling or machining. Then subject to rapid intense local heating which minimises heat conduction to the body of the **die**. The dies can be produced more quickly and cheaply, without expensive capital equipment such as E.M processing machinery or similar.

Dwg.3/5

Derwent Class: M24; P54; P55; P56

International Patent Class (Main): B23D-035/00; B23P-015/40
International Patent Class (Additional): B23D-025/12; B23K-026/00;
B23K-101-20; C21D-001/09; C21D-009/00
?

11/7/1 (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO
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00928207 **Image available**
PRODUCTION OF ION CRYSTAL OPTICAL FIBER

PUB. NO.: 57-078507 [JP 57078507 A]
PUBLISHED: May 17, 1982 (19820517)
INVENTOR(s): SHIODA TAKAO
SASAGAWA TOSHIKATSU
APPLICANT(s): FUJIKURA LTD [000518] (A Japanese Company or Corporation), JP
(Japan)
APPL. NO.: 55-155595 [JP 80155595]
FILED: November 05, 1980 (19801105)

ABSTRACT

PURPOSE: To ensure the adhesive properties and the smoothness of interface for the core and **cladding**, by forming the **cladding** of ion crystal by using an extruder having a crosshead **die** for a core fiber which is previously formed with the ion crystal.

CONSTITUTION: A core fiber 1 of ion crystal is led into a pierced hole 5 of a mandrel 4 provided at the center part of a crosshead **die** 3 of an extruder 2. At the same time, the ion crystal **powder** 7 which is turned into a **cladding** is filled into a barrel 6. The **powder** 7 is pressed by a ram 9 heated by a heater 8 up to a temperature lower than the melting point to be plasticized, flows into the **die** 3 through the tip of the barrel 6, sticks to the outside of the fiber 1 which is led through the hole 5 at a lip part 10 to form a **cladding** 11. In this case, an end of the mandrel 4 is connected to a vacuum pump 14 through a pipe 13 to reduce the pressure within the mandrel 4.

11/7/2 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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014066090
WPI Acc No: 2001-550303/200162

Production of steel die tool with protective coating involves forming a coating having iron or iron-base matrix material, and oxidizing iron to iron oxide containing required level of magnetite

Patent Assignee: NISSAN CASTING AUSTRALIA PTY LTD (NISS-N)

Inventor: BRANDT M; JAHEDI M

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
AU 200118382	A	20010816	AU 200118382	A	20010209	200162 B

Priority Applications (No Type Date): AU 20005523 A 20000209

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
AU 200118382	A		15	C23C-004/06	

Abstract (Basic): AU 200118382 A

NOVELTY - A steel **die** tool with a protective coating is produced by: (a) forming on the component surface, by hardfacing process, a coating having an iron or iron-base matrix material in which fine particles of another material are dispersed; and (b) oxidizing the iron of at least an outer surface layer of the matrix material, such that the resultant iron oxide contains a required level of magnetite.

USE - For producing **die** tool used in **die** casting of aluminum alloy (claimed).

ADVANTAGE - The method protects the **die** tool against soldering by the alloy.

pp; 15 DwgNo 0/0

Derwent Class: L02; M13; M22; M23

International Patent Class (Main): C23C-004/06

International Patent Class (Additional): C23C-004/10; C23C-004/12

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DIALOG(R) File 348:EUROPEAN PATENTS

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00881949

CUTTING DIE AND METHOD OF FORMING

STANZMESSER UND HERSTELLUNGSVERFAHREN

MATRICE DE DECOUPE ET PROCEDE DE FORMAGE

PATENT ASSIGNEE:

Bernal International, Inc., (2676700), 312 W. Main Street, Suite 3,
Matthews Building W., Owosso, MI 48867, (US), (Proprietor designated
states: all)

INVENTOR:

CHENG, Tzyh-Chang, 419 Greenwich Drive 6, Howell, MI 48843, (US)

ZHANG, Yu, 1878 Dorchester Drive 206, Troy, MI 48084, (US)

LEGAL REPRESENTATIVE:

Findlay, Alice Rosemary (69451), Lloyd Wise, Tregear & Co., Commonwealth
House, 1-19 New Oxford Street, London WC1A 1LW, (GB)

PATENT (CC, No, Kind, Date): EP 880423 A1 981202 (Basic)

EP 880423 B1 011128

WO 9729879 970821

APPLICATION (CC, No, Date): EP 97908663 970214; WO 97US2482 970214

PRIORITY (CC, No, Date): US 602379 960216

DESIGNATED STATES: AT; CH; DE; DK; ES; FI; GB; IT; LI

INTERNATIONAL PATENT CLASS: B23P-015/40; B21D-037/20

CITED PATENTS (EP B): DE 2907325 A; US 3952179 A

CITED REFERENCES (EP B):

PATENT ABSTRACTS OF JAPAN vol. 6, no. 134 (M-144), 21 July 1982 & JP 57
058990 A (TOSHIBA), 9 April 1982,

LASER ASSISTED NET SHAPE ENGINEERING PROCEEDINGS OF THE LANE, vol. 2,
1994, pages 803-814, XP000604533 MURPHY M L ET AL: "THE RAPID
MANUFACTURE OF METALLIC COMPONENTS BY LASER SURFACE CLADDING"

PATENT ABSTRACTS OF JAPAN vol. 12, no. 257 (M-719), 20 July 1988 & JP 63
040621 A (HONDA), 22 February 1988,

PATENT ABSTRACTS OF JAPAN vol. 18, no. 227 (M-1597), 25 April 1994 & JP
06 023448 A (HONDA), 1 February 1994,

PATENT ABSTRACTS OF JAPAN vol. 12, no. 83 (M-677), 16 March 1988 & JP 62
224527 A (DAIDO STEEL), 2 October 1987,;

NOTE:

No A-document published by EPO

LEGAL STATUS (Type, Pub Date, Kind, Text):

Grant: 011128 B1 Granted patent

Application: 971112 A1 International application (Art. 158(1))

Application: 981202 A1 Published application (Alwith Search Report
;A2without Search Report)

Examination: 981202 A1 Date of filing of request for examination:
980902

Change: 990414 A1 Representative (change)

*Assignee: 990414 A1 Applicant (transfer of rights) (change): Bernal
International, Inc. (2676700) 312 W. Main
Street, Suite 3, Matthews Building W. Owosso,
MI 48867 (US) (applicant designated states:
AT;CH;DE;DK;ES;FI;GB;IT;LI)

*Assignee: 990414 A1 Previous applicant in case of transfer of
rights (change): Stevens International
(2378750) 5500 Airport Freeway Ft. Worth, TX
76117 (US) (applicant designated states:
AT;CH;DE;DK;ES;FI;GB;IT;LI)

Examination: 990512 A1 Date of despatch of first examination report:
990329

*Priority: 990616 A1 Priority date, country, application number
(change)

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200148	249
CLAIMS B	(German)	200148	271
CLAIMS B	(French)	200148	306

SPEC B (English) 200148 3778
Total word count - document A 0
Total word count - document B 4604
Total word count - documents A + B 4604

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DIALOG(R)File 348:EUROPEAN PATENTS
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00878756

CUTTING DIE AND METHOD OF MAKING
STANZMESSER UND HERSTELLUNGSVERFAHREN
EMPORTE-PIECE ET PROCEDE DE FABRICATION
PATENT ASSIGNEE:

Bernal International, Inc., (2676700), 312 W. Main Street, Suite 3,
Matthews Building W., Owosso, MI 48867, (US), (Proprietor designated
states: all)

INVENTOR:

ZHANG, Yu, 1878 Dorchester Drive 206, Troy, MI 48084, (US)

CHERNG, Tzyh-Chyang, 419 Greenwich Drive G, Howell, MI 48843, (US)

LEGAL REPRESENTATIVE:

Findlay, Alice Rosemary et al (69451), Lloyd Wise, Tregear & Co.,
Commonwealth House, 1-19 New Oxford Street, London WC1A 1LW, (GB)

PATENT (CC, No, Kind, Date): EP 880422 A1 981202 (Basic)

EP 880422 B1 011212

WO 9729878 970821

APPLICATION (CC, No, Date): EP 96918427 960611; WO 96US9907 960611

PRIORITY (CC, No, Date): US 603039 960215

DESIGNATED STATES: AT; CH; DE; DK; ES; FI; GB; IT; LI

INTERNATIONAL PATENT CLASS: B23P-015/40; C21D-001/09

CITED PATENTS (EP B): WO 91/01386 A; DE 2013674 A; US 4608895 A; US 5417132
A

CITED REFERENCES (EP B):

PATENT ABSTRACTS OF JAPAN vol. 18, no. 443 (C-1239), 18 August 1994 &
JP,A,06 136431 (HONDA), 17 May 1994,

PATENT ABSTRACTS OF JAPAN vol. 13, no. 472 (C-647), 25 October 1989 &
JP,A,01 184218 (MAZDA), 21 July 1989,

PATENT ABSTRACTS OF JAPAN vol. 6, no. 139 (C-116), 28 July 1982 & JP,A,57
063632 (TOSHIBA), 17 April 1982,;

NOTE:

No A-document published by EPO

LEGAL STATUS (Type, Pub Date, Kind, Text):

Grant: 011212 B1 Granted patent

Application: 971105 A1 International application (Art. 158(1))

Application: 981202 A1 Published application (Alwith Search Report
;A2without Search Report)

Examination: 981202 A1 Date of filing of request for examination:
980902

Change: 990526 A1 Representative (change)

*Assignee: 990526 A1 Applicant (transfer of rights) (change): Bernal
International, Inc. (2676700) 312 W. Main
Street, Suite 3, Matthews Building W. Owosso,
MI 48867 (US) (applicant designated states:
AT;CH;DE;DK;ES;FI;GB;IT;LI)

*Assignee: 990526 A1 Previous applicant in case of transfer of
rights (change): Stevens International Inc.
(2376240) 5500 Airport Freeway Ft. Worth, TX
76117 (US) (applicant designated states:
AT;CH;DE;DK;ES;FI;GB;IT;LI)

Examination: 990602 A1 Date of despatch of first examination report:
990420

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200150	251
CLAIMS B	(German)	200150	253
CLAIMS B	(French)	200150	256

SPEC B	(English)	200150	3232
Total word count - document A			0
Total word count - document B			3992
Total word count - documents A + B			3992
?			

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DIALOG(R) File 348:EUROPEAN PATENTS

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01067162

Abrasion resistant copper alloy for build-up cladding on engine cylinder head

Verschleissfeste Kupferlegierung für Auftragsschweißen auf Zylinderköpfen von Verbrennungsmotoren

Alliage a base de cuivre, resistant a l'usure ,pour rechargement des tetes de cylindre de moteurs a combustion

PATENT ASSIGNEE:

NISSAN MOTOR COMPANY LIMITED, (228495), No. 2, Takara-cho, Kanagawa-ku, Yokohama-city, Kanagawa-prefecture, (JP), (Proprietor designated states: all)

Mitsui Mining and Smelting Co., Ltd, (2647680), 1-11-1 Osaki, Shinagawa-ku, Tokyo, (JP), (Proprietor designated states: all)

INVENTOR:

Ninomiya, Ryuji, 1333-2 Haraichi, Mitsui Mining & Smelting Co., Ltd, Ageo City, Saitama, (JP)

Ojiro, Takeshi, 1333-2 Haraichi, Mitsui Mining & Smelting Co., Ltd, Ageo City, Saitama, (JP)

Miyake, Koichi, 1333-2 Haraichi, Mitsui Mining & Smelting Co., Ltd, Ageo City, Saitama, (JP)

Kano, Makoto, 3-405, 2-1, Ryokuen 4-chome, Izumi-ku, Yokohama-City, Kanagawa, (JP)

Tsushima, Kenji, Ikoinomachi B401, 4-21, Noukendai 4-chome, Kanazawa-ku, Yokohama-City, Kanagawa, (JP)

Matsuyama, Hidenobu, 39-11, Sakuragaoka 1-chome, Yokosuka-City, Kanagawa, (JP)

Suzuki, Kenji, 22-23-910, Tsurumi-chuo 3-chome, Tsurumi-ku, Yokohama-City, Kanagawa, (JP)

LEGAL REPRESENTATIVE:

Godwin, Edgar James (31041), MARKS & CLERK, 57-60 Lincoln's Inn Fields, London WC2A 3LS, (GB)

PATENT (CC, No, Kind, Date): EP 939139 A2 990901 (Basic)
EP 939139 A3 000112
EP 939139 B1 011004

APPLICATION (CC, No, Date): EP 99301447 990226;

PRIORITY (CC, No, Date): JP 9845831 980226; JP 9923277 990129

DESIGNATED STATES: DE; FR; GB; IT

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

RELATED DIVISIONAL NUMBER(S) - PN (AN):

EP 1120472 (EP 2000128383)

INTERNATIONAL PATENT CLASS: C22C-009/06; B23K-035/30

CITED PATENTS (EP B): EP 320195 A; EP 344310 A; EP 727501 A

CITED REFERENCES (EP B):

PATENT ABSTRACTS OF JAPAN vol. 1996, no. 06, 28 June 1996 (1996-06-28) -& JP 08 035027 A (NISSAN MOTOR CO LTD), 6 February 1996 (1996-02-06)

PATENT ABSTRACTS OF JAPAN vol. 1997, no. 02, 28 February 1997 (1997-02-28) -& JP 08 283889 A (CHUETSU GOKIN CHUKO KK), 29 October 1996 (1996-10-29)

PATENT ABSTRACTS OF JAPAN vol. 1997, no. 06, 30 June 1997 (1997-06-30) -& JP 09 031571 A (HITACHI POWDERED METALS CO LTD;NISSAN MOTOR CO LTD), 4 February 1997 (1997-02-04)

PATENT ABSTRACTS OF JAPAN vol. 014, no. 453 (C-0764), 28 September 1990 (1990-09-28) -& JP 02 179839 A (KOBE STEEL LTD), 12 July 1990 (1990-07-12);

ABSTRACT EP 939139 A2

The copper alloy contains: 6 - 15 wt% Ni; 1 - 5 wt% Si; 1 - 5 wt% (total) Mo, W, Ta, Nb, and/or V. The alloy may also contain 0.5 - 1.5 wt% Fe, 1 - 5 wt% Cr, 0.5 - 0.9 wt% Al, and 0.1 - 1.0 wt% P, which are obligatory when Ni is above 9 wt%. The alloy may also contain 1 - 10 wt% Mn and 0.01 to 0.1 wt% rare earth metal. A valve seat (2) is formed by build-up **cladding** by irradiating a **laser** beam on a **powder** (4) of the copper alloy, provided in the rim of a port (3) formed in an engine cylinder head (1). Due to the composition of the copper alloy, the valve

seat (2) has few microcracks and excellent abrasion resistance.

ABSTRACT WORD COUNT: 135

NOTE:

Figure number on first page: 1

LEGAL STATUS (Type, Pub Date, Kind, Text):

Examination: 001102 A2 Date of dispatch of the first examination
report: 20000918

Search Report: 20000112 A3 Separate publication of the search report

Grant: 011004 B1 Granted patent

Change: 010221 A2 Application number of divisional application
(Article 76) changed: 20010104

Application: 990901 A2 Published application without search report

Examination: 990901 A2 Date of request for examination: 19990323

Change: 991208 A2 Title of invention (German) changed: 19991021

Change: 991208 A2 Title of invention (French) changed: 19991021

LANGUAGE (Publication, Procedural, Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	199935	579
CLAIMS B	(English)	200140	321
CLAIMS B	(German)	200140	282
CLAIMS B	(French)	200140	359
SPEC A	(English)	199935	3254
SPEC B	(English)	200140	2622
Total word count - document A			3835
Total word count - document B			3584
Total word count - documents A + B			7419

19/5/12

DIALOG(R)File 348:EUROPEAN PATENTS

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00568139

Laser method for applying a matrix metal and pretreated clad abrasive
particles to the tip of a turbine blade

Laserverfahren zum Anbringen von vorbehandelten überzogenen
Schleifpartikeln und einer Metallmatrix auf der Spitze einer
Turbinenschaufel

Procede laser pour appliquer au bout d'aubes de turbine un metal matrice
et des particules abrasives enrobees prealablement traitees

PATENT ASSIGNEE:

QUANTUM LASER CORPORATION, (824090), 300 Columbus Circle The Raritan
Center, Edison New Jersey 08837, (US), (applicant designated states:
AT; BE; CH; DE; DK; ES; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE

INVENTOR:

Everett, Mark A., 58 Winchester Drive, East Windsor, New Jersey 08520,
(US)

Blankhain, Alan R., 216 Columbia Avenue, Metuchen, New Jersey 08840, (US)

LEGAL REPRESENTATIVE:

Paul, Dieter-Alfred, Dipl.-Ing. (9181), Fichtestrasse 18, 41464 Neuss,
(DE)

PATENT (CC, No, Kind, Date): EP 573928 A1 931215 (Basic)
EP 573928 B1 980930

APPLICATION (CC, No, Date): EP 93109074 930605;

PRIORITY (CC, No, Date): US 894931 920608; US 52730 930430

DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IE; IT; LI; LU; MC;
NL; PT; SE

INTERNATIONAL PATENT CLASS: B23K-026/00; F01D-011/08; B05D-003/06;
C23C-004/00;

CITED PATENTS (EP A): US 4232995 A; EP 509758 A; EP 349661 A; US 3339933 A;
EP 246828 A; US 4730093 A; US 4300474 A; US 4299860 A; DE 3347048 C; US
4804815 A; US 4726715 A

ABSTRACT EP 573928 A1

A method of applying abrasive materials to a substrate (32) includes
the steps of forming a relatively small pool of superheated molten metal

at the surface of the metal substrate (32) by creating an interaction area on the substrate with a localized high energy source (L). A **powder** system (38) is injected into the pool. The **powder** system (38) comprises metal matrix (78) **powder** and abrasive **powder** (76). The abrasive **powder** includes abrasive particles (76) having an encapsulating thermal insulating layer for preventing the abrasive particles from being melted by the molten metal in the pool. The substrate is then moved relative to the energy source (L), thereby allowing the pool to resolidify. (see image in original document)

ABSTRACT WORD COUNT: 120

LEGAL STATUS (Type, Pub Date, Kind, Text):

Lapse: 010228 B1 Date of lapse of European Patent in a contracting state (Country, date): AT 19980930, BE 19980930, CH 19980930, LI 19980930, IE 19990605, PT 19981230, SE 19981231,

Application: 931215 A1 Published application (A1with Search Report ;A2without Search Report)

Lapse: 020619 B1 Date of lapse of European Patent in a contracting state (Country, date): AT 19980930, BE 19980930, CH 19980930, LI 19980930, ES 19980930, GR 19980930, IE 19990605, PT 19981230, SE 19981231,

Lapse: 010606 B1 Date of lapse of European Patent in a contracting state (Country, date): AT 19980930, BE 19980930, CH 19980930, LI 19980930, GR 19980930, IE 19990605, PT 19981230, SE 19981231,

Examination: 940803 A1 Date of filing of request for examination: 940606

Examination: 951011 A1 Date of despatch of first examination report: 950824

Grant: 980930 B1 Granted patent

Lapse: 990602 B1 Date of lapse of the European patent in a Contracting State: CH 980930, LI 980930

Lapse: 990602 B1 Date of lapse of the European patent in a Contracting State: CH 980930, LI 980930

Lapse: 990707 B1 Date of lapse of the European patent in a Contracting State: BE 980930, CH 980930, LI 980930

Lapse: 990721 B1 Date of lapse of the European patent in a Contracting State: BE 980930, CH 980930, LI 980930, PT 981230

Lapse: 990811 B1 Date of lapse of European Patent in a contracting state (Country, date): BE 19980930, CH 19980930, LI 19980930, PT 19981230, SE 19981231,

Lapse: 990825 B1 Date of lapse of European Patent in a contracting state (Country, date): AT 19980930, BE 19980930, CH 19980930, LI 19980930, PT 19981230, SE 19981231,

Oppn None: 990922 B1 No opposition filed: 19990701

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9840	1426
CLAIMS B	(German)	9840	1471
CLAIMS B	(French)	9840	1556
SPEC B	(English)	9840	4668
Total word count - document A			0
Total word count - document B			9121
Total word count - documents A + B			9121

?

7/7/1 (Item 1 from file: 25)
DIALOG(R)File 25:Weldasearch
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00154281 133822

Industrial applications of laser cladding .

MANGALY A A; EVERETT M A; HAMMEKE A W

In Book: Industrial Laser Annual Handbook - 1988 Edition. Ed: D.Belforte, M.Levitt, L.Belleville. Publ: Tulsa, OK 74101, USA; PennWell Publishing Co.; 1988. ISBN 0-87814-333-5. pp.69-74. 10 fig., 1 tab., 13 ref.

PUBLICATION DATE: 19880000 DOCUMENT TYPE: Books and other publications

LANGUAGE: English RECORD TYPE: Abstract

The process of **laser** surfacing and its applications are reviewed. Advantages of **laser** surfacing, the procedure (by dynamic **powder** feed and other means), and recent developments in **powder** delivery, cladding alloys and feedback control of the process are discussed. Examples of uses in aerospace (turbine **blades**), automotive (exhaust valves), oil industry (valve parts, drilling equipment components), process industries (boiler tubes, turbine **blades** , pump parts), and general industry (tractor bushings, valves, **cutting** equipment, extruder screws) applications are presented. Future trends, especially with regard to costs, are discussed.

7/7/2 (Item 1 from file: 32)
DIALOG(R)File 32:METADEX(R)
(c) 2002 Cambridge Scientific Abs. All rts. reserv.

0893214 MA Number: 199205-58-0649

High-Powdered Lasers Gain Ground for Cladding and Hardfacing.

Irving, B

Welding Journal 70. (8), 37-40 Aug. 1991

ISSN: 0043-2296

Country of Publication: USA

Journal Announcement: 9205

Document Type: Article

Language: ENGLISH

Abstract: The benefits of laser cladding, according to Quantum Laser, are: elimination of premachining; increased yield; increased purity of the alloy deposited; no masking; and reduced post machining. CO sub 2 lasers are used at Stardyne for hardfacing for wear resistance, overlaying for corrosion resistance, the buildup of worn components and coatings capable of depositing specific properties. Stardyne is involved in welding, cutting and cladding. The lasers are used for the deposition of Ni-based alloy powder onto carbon-steel covers and HY80 steel tracks for catapult covers for aircraft carriers at Stardyne. Most of the powdered metal deposited by the lasers at Stardyne are Ni-based alloys and Stellite 6. Penn State is researching the ability to clad Stellite onto HY80 steel for valve seat repair by lasers. Quantum Laser uses laser cladding to hardface and repair jet engine components, to hardface shrouded turbine blades with Coast Metal 64 (cobalt-based material), and to deposit a range of Ni-based alloys--Alloys 625, 718, 713, and 792. S.E. Huffman Corp. uses lasers to refurbish worn airfoil blades; Rofin-Sinar, Inc. is investigating the practicality of using laser cladding to extend the service life of die components. Rofin-Sinar notes that there are four different versions of laser cladding: delivered powder approach; a laser used to fuse a preapplied conventional thermal spray; where a preapplied, organically bonded powder is fused to a substrate by the laser beam; and where the laser is used to fuse wires, tapes or preforms.

7/7/3 (Item 2 from file: 32)
DIALOG(R)File 32:METADEX(R)
(c) 2002 Cambridge Scientific Abs. All rts. reserv.

0782544 MA Number: 89-530958

Throwing a Little Light on Laser-Cutting Issues.

Sprow, E E

Tool. Prod. 55, (4), 76-79, 81-82 July 1989

ISSN: 0040-9243

Journal Announcement: 8910

Document Type: ARTICLE

Language: ENGLISH

Abstract: YAG, ruby and solid-state lasers (unlike gas CO sub 2 lasers) use some form of solid medium and pump by using a very intense flashing light or other lasers to pump. A new 2 kW YAG laser opens up many possibilities. Beyond their absorption edge in certain materials--Cu, Al, precious metals, etc.--their ability to deliver power via flexible fiber optics is a big advantage. Laser powder cladding (typically the cladding of turbine blades to renew their geometries) and use of the laser to cut camera components to near net shapes are applications discussed. The precise part comes off the laser cutting machine and goes right into the camera. The majority of cutting lasers, between 600-1750 W, have DC excitation.--D.O.L.

7/7/4 (Item 1 from file: 35)

DIALOG(R)File 35:Dissertation Abs Online

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01559032 ORDER NO: AAD13-83366

LASER CLADDING OF HARD-FACING MATERIALS ONTO AISI 1045 STEEL FOR
PATTERNED CUTTING - DIE DESIGN

Author: HU, YIPING

Degree: M.S.

Year: 1996

Corporate Source/Institution: MICHIGAN STATE UNIVERSITY (0128)

Source: VOLUME 35/03 of MASTERS ABSTRACTS.

PAGE 874. 113 PAGES

In conventional rotary **cutting - die** manufacturing process, the cost of materials is high, the process is time-consuming, production efficiency is very low, and therefore production costs are extremely high. Also, the life of rotary **cutting dies** is rather short due to the segregation and flake morphology of carbides in D2 alloy, commonly used for **die** making. For this reason, it is necessary to seek a new tool material, with a hard surface, a tough core, and with wear-resistant properties, to form patterned **cutting blades** to prolong the life of rotary **cutting dies**. Alternatively, we can investigate an alternative manufacturing process to produce such **cutting dies** at a significantly reduced production cost. **Laser cladding** appears to be such a process.

In our present research, a new **powder** feeding system is designed for **laser cladding**. It can provide a stable, continuous, and accurate **powder** feeding rate, and deliver the **powder** stream coaxially into the molten pool under the **laser** beam. The experimental results showed that this **powder** feeding system is suitable for depositing high quality cladding tracks, along complicated geometric paths, on flat or curved surfaces. A simple but realistic model relating the clad thickness and processing parameters is also developed, and the various relationships between the clad thickness and process parameters are discussed in detail. The calculated results of this model are in good agreement with the experimental ones. Finally, a novel process is successfully developed for directly depositing hard-facing tracks, along complicated geometric paths, on AISI 1045 steel substrates for manufacturing plate or rotary **cutting dies**. Fully functional prototype of industrial rotary **cutting dies**, for pilot testing, has been successfully produced by this process. This new technique is being implemented in **die**-making industry.

8/3/1 (Item 1 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2002 Institution of Electrical Engineers. All rts. reserv.

5886558 INSPEC Abstract Number: A9810-8120-004

Title: Development of a new laser cladding process for manufacturing cutting and stamping dies

Author(s): Hu, Y.P.; Chen, C.W.; Mukherjee, C.K.

Author Affiliation: Dept. of Mater. Sci. & Mech., Michigan State Univ., East Lansing, MI, USA

Journal: Journal of Materials Science vol.33, no.5 p.1287-92

Publisher: Chapman & Hall,

Publication Date: 1 March 1998 Country of Publication: UK

CODEN: JMTSAS ISSN: 0022-2461

SICI: 0022-2461(19980301)33:5L:1287:DLCP;1-Q

Material Identity Number: J079-98013

U.S. Copyright Clearance Center Code: 0022-2461/98/\$15.00

Language: English

Subfile: A

Copyright 1998, IEE

8/3/2 (Item 2 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2002 Institution of Electrical Engineers. All rts. reserv.

5529161 INSPEC Abstract Number: A9709-6180B-001

Title: Laser ablation of Nd-Fe-B magnets

Author(s): Kruusing, A.; Podgurski, V.; Mikli, V.

Journal: Proceedings of the Estonian Academy of Sciences (Engineering) vol.2, no.1 p.137-42

Publisher: Estonian Acad. Sci,

Publication Date: 1996 Country of Publication: Estonia

CODEN: PEAEF8 ISSN: 1406-0175

SICI: 1406-0175(1996)2:1L:137:LAM;1-6

Material Identity Number: F398-96003

Language: English

Subfile: A

Copyright 1997, IEE

8/3/3 (Item 3 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2002 Institution of Electrical Engineers. All rts. reserv.

5501423 INSPEC Abstract Number: A9706-8160B-010, B9703-0530-003

Title: Advanced laser processing of metals

Author(s): Mazumder, J.

Author Affiliation: Dept. of Mech. & Mater. Eng., Illinois Univ., Urbana, IL, USA

Conference Title: Digest. IEEE/LEOS 1996 Summer Topical Meetings. Advanced Applications of Lasers in Materials Processing; Broadband Optical Networks - Enabling Technologies and Applications; Smart Pixels; Optical MEMs and their Applications (Cat. No.96TH8164) p.23-5

Publisher: IEEE, New York, NY, USA

Publication Date: 1996 Country of Publication: USA vi+78 pp.

ISBN: 0 7803 3175 3 Material Identity Number: XX96-02677

Conference Title: Digest IEEE/Leos 1996 Summer Topical Meeting. Advanced Applications of Lasers in Materials and Processing

Conference Sponsor: Eng. Found

Conference Date: 5-9 Aug. 1996 Conference Location: Keystone, CO, USA

Language: English

Subfile: A B

Copyright 1997, IEE

8/3/4 (Item 1 from file: 6)

DIALOG(R)File 6:NTIS

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2005256 NTIS Accession Number: DE97003144

Directed light fabrication of rhenium components

Milewski, J. O. ; Thoma, D. J. ; Lewis, G. K.

Los Alamos National Lab., NM.

Corp. Source Codes: 072735000; 9512470

Sponsor: Department of Energy, Washington, DC.

Report No.: LA-UR-96-4484; CONF-970201-12

1997 9p

Languages: English Document Type: Conference proceeding

Journal Announcement: GRAI9715; ERA9728

Annual meeting of the Minerals, Metals and Materials Society (126th), Orlando, FL (United States), 9-13 Feb 1997. Sponsored by Department of Energy, Washington, DC.

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NTIS Prices: PC A02/MF A01

8/3/5 (Item 2 from file: 6)

DIALOG(R)File 6:NTIS

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1970063 NTIS Accession Number: TIB/A96-03621

Praezisionsbearbeitung mit Festkoerperlasern (Oberflaechenbearbeitung). Teilprojekt: Grundlagenuntersuchungen zur Beschichtung mit Hartstoffen, insbesondere Diamanten. Abschlussbericht. (Precision machining with solid state lasers (surface treatments). Subproject: fundamental investigations of laser cladding hard particles, especially diamonds. Final report)

Bergmann, H.W. ; Lang, A. ; Koerner, C. ; Stiele, H.

Erlangen-Nuernberg Univ., Erlangen (DE). Lehrstuhl Werkstoffwissenschaften II (Werkstoffkunde und Technologie der Metalle).

Corp. Source Codes: 888888888; 9206333

1995 82p

Languages: German

Journal Announcement: GRAI9621

In German.

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NTIS Prices: PC E09

8/3/6 (Item 3 from file: 6)

DIALOG(R)File 6:NTIS

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1460602 NTIS Accession Number: DE89613235

Laser Processing of Metals and Alloys

Goswami, G. L. ; Kumar, D. ; Roy, P. R.

Bhabha Atomic Research Centre, Bombay (India).

Corp. Source Codes: 004104000; 0807000

Report No.: BARC-1431

1988 87p

Languages: English

Journal Announcement: GRAI8922

U.S. Sales Only. Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)321-8547; and email at orders@ntis.fedworld.gov. NTIS is located at 5285 Port Royal Road, Springfield, VA, 22161, USA.

NTIS Prices: PC A05/MF A01

8/3/7 (Item 1 from file: 8)

DIALOG(R)File 8:Ei Compendex(R)
(c) 2002 Engineering Info. Inc. All rts. reserv.

05075494 E.I. No: EIP98074308700

Title: Innovative laser -aided manufacturing of patterned stamping and cutting dies : Processing parameters

Author: Hu, Yiping; Chen, Chungwen; Mukherjee, Kali

Corporate Source: Michigan State Univ, East Lansing, MI, USA

Source: Materials and Manufacturing Processes v 13 n 3 May 1998. p 369-387

Publication Year: 1998

CODEN: MMAPET ISSN: 1042-6914

Language: English

8/3/8 (Item 2 from file: 8)

DIALOG(R)File 8:Ei Compendex(R)

(c) 2002 Engineering Info. Inc. All rts. reserv.

05065514 E.I. No: EIP98074289855

Title: Laser step shaping for laminated object manufacturing parts

Author: Erasenthiran, P.; Jungreuthmayer, R.Ball C.; O'Neill, W.; Steen, W.M.

Corporate Source: Univ of Liverpool, Liverpool, UK

Conference Title: Proceedings of the 1997 Laser Materials Processing Conference, ICALEO'97. Part 2 (of 2)

Conference Location: San Diego, CA, USA Conference Date: 19971117-19971120

E.I. Conference No.: 48669

Source: Laser Institute of America, Proceedings v 83 n 2 1997. Laser Inst of America, Orlando, FL, USA. p E84-E92

Publication Year: 1997

CODEN: LIAAED

Language: English

8/3/9 (Item 3 from file: 8)

DIALOG(R)File 8:Ei Compendex(R)

(c) 2002 Engineering Info. Inc. All rts. reserv.

04994998 E.I. No: EIP98044165341

Title: Directed light fabrication of a solid metal hemisphere using 5-axis powder deposition

Author: Milewski, J.O.; Lewis, G.K.; Thoma, D.J.; Keel, G.I.; Nemec, R.B.; Reinert, R.A.

Corporate Source: Los Alamos Natl Lab, Los Alamos, NM, USA

Source: Journal of Materials Processing Technology v 75 n 1-3 Mar 1998. p 165-172

Publication Year: 1998

CODEN: JMPTEF ISSN: 0924-0136

Language: English

8/3/10 (Item 4 from file: 8)

DIALOG(R)File 8:Ei Compendex(R)

(c) 2002 Engineering Info. Inc. All rts. reserv.

04976220 E.I. No: EIP98034116407

Title: Analysis of powder feeding systems on the quality of laser cladding

Author: Hu, Y.P.; Chen, C.W.; Mukherjee, K.

Corporate Source: Michigan State Univ, East Lansing, MI, USA

Conference Title: Proceedings of the 1997 International Conference on Powder Metallurgy and Particulate Materials. Part 3 (of 3)

Conference Location: Chicago, IL, USA Conference Date: 19970629-19970702

E.I. Conference No.: 48120

Source: Advances in Powder Metallurgy and Particulate Materials v 3 1997.

Metal Powder Industries Federation, Princeton, NJ, USA. p 21-17-21-31
Publication Year: 1997
CODEN: APMEED ISSN: 1042-8860
Language: English

8/3/11 (Item 5 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)
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04286414 E.I. No: EIP95112922538
Title: Direct laser metal deposition process fabricates near-net-shape components rapidly
Author: Lewis, Gary K.; Lyons, Peter
Corporate Source: Los Alamos Natl Lab, Los Alamos, NM, USA
Source: Materials Technology v 10 n 3-4 Mar-Apr 1995. p 51-54
Publication Year: 1995
CODEN: MATTEI ISSN: 1066-7857
Language: English

8/3/12 (Item 6 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)
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03895052 E.I. No: EIP94071334151
Title: Structure and properties of laser surfaced powder coats of boron-bearing iron-based alloys
Author: Kovalenko, V.S.; Lutaj, A.N.; Dyatel, V.P.; Egorov, M.D.; Mazek, A.E.
Corporate Source: Kievskij Politeknicheskij Inst, Kiev, Ukraine
Source: Elektronnaya Obrabotka Materialov n 5 Sep-Oct 1993. p 13-16
Publication Year: 1993
CODEN: EOBMAF ISSN: 0013-5739
Language: Russian

8/3/13 (Item 7 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)
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02349892 E.I. Monthly No: EIM8711-075752
Title: LASER TECHNOLOGY FOR INDUSTRY.
Author: Tower, Steve; Ehlerding, Gerhard
Corporate Source: Laser Applications Inc
Conference Title: 2nd Biennial International Machine Tool Technical Conference.
Conference Location: Rosemont, IL, USA Conference Date: 19840905
E.I. Conference No.: 09883
Source: v 4. Publ by Natl Machine Tool Builders' Assoc, McLean, VA, USA p 12. 57-12. 69
Publication Year: 1984
Language: English

8/3/14 (Item 1 from file: 25)
DIALOG(R)File 25:Weldasearch
(c) 2002 TWI Ltd. All rts. reserv.

00219827 199370
Bonding strength studies for laser cladding [laser surfacing] dies .

ZHANG Y; YUAN X K; ZENG X H
BERNAL INTERNATIONAL INC; CHINA TEXTILE UNIVERSITY
In: Laser Materials Processing. Proceedings, Conference, ICALEO '98, Orlando, Florida, 16-19 Nov.1998. Chairmen: E.Beyer, X.L.Chen, I.Miyamoto.
Publ: Orlando, FL 32826, USA; Laser Institute of America; 1998. ISBN 0-912035-58-7. Vol.85. Part 2. Section D. pp.29-40. 11 fig., 1 tab., 8 ref.

PUBLICATION DATE: 19980000 DOCUMENT TYPE: Conference
LANGUAGE: English RECORD TYPE: Abstract

8/3/15 (Item 2 from file: 25)

DIALOG(R)File 25:Weldasearch
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00211705 191248

Development of a new laser cladding [surfacing] process for manufacturing cutting and stamping dies .

MUKHERJEE K; HU Y P; CHEN C W

Journal of Materials Science, vol.33. Mar.1998. pp.1287-1292.

JOURNAL OF MATERIALS SCIENCE

PUBLICATION DATE: 19980000 DOCUMENT TYPE: Journal

LANGUAGE: English RECORD TYPE: Abstract

8/3/16 (Item 3 from file: 25)

DIALOG(R)File 25:Weldasearch
(c) 2002 TWI Ltd. All rts. reserv.

00205634 185175

Laser beam welding shifts into high gear.

IRVING B

Welding Journal, vol.76, no.11. Nov.1997. pp.35-40. 4 fig.

WELDING JOURNAL

PUBLICATION DATE: 19970000 DOCUMENT TYPE: Journal

LANGUAGE: English RECORD TYPE: Abstract

8/3/17 (Item 4 from file: 25)

DIALOG(R)File 25:Weldasearch
(c) 2002 TWI Ltd. All rts. reserv.

00161879 141420

Laser technology developments in the USSR.

KOVALENKO V S

In Book: Industrial Laser Annual Handbook - 1990 Edition. Ed: D.Belforte, M.Levitt, L.Belleville. Publ: Tulsa, OK 74101, USA; PennWell Publishing Co; 1990. ISBN 0-87814-359-9. pp.128-134. 6 fig., 1 tab., 28 ref.

PUBLICATION DATE: 19900000 DOCUMENT TYPE: Books and other publications

LANGUAGE: English RECORD TYPE: Abstract

8/3/18 (Item 5 from file: 25)

DIALOG(R)File 25:Weldasearch
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00149910 129451

Lasers make light of many processes [laser welding and cutting applications].

SCRASE T

Metalworking Production, vol.132, no.10. Aug.1988. pp.54-55, 57, 61. 8 fig.

METALWORKING PRODUCTION

PUBLICATION DATE: 19880000 DOCUMENT TYPE: Journal

LANGUAGE: English RECORD TYPE: Abstract

8/3/19 (Item 6 from file: 25)

DIALOG(R)File 25:Weldasearch
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00142448 121989

Laser beams clad alloys.

KUVIN B F

Welding Design and Fabrication, vol.60, no.5. May 1987. pp.35-37. 5 fig.

WELDING DESIGN AND FABRICATION

8/3/20 (Item 1 from file: 32)

DIALOG(R) File 32:METADEX(R)

(c) 2002 Cambridge Scientific Abs. All rts. reserv.

1139290 MA Number: 199808-51-1380

Rapid tooling die case inserts using shape deposition manufacturing.

Link, G R ; Fessler, J ; Nickel, A ; Prinz, F

Stanford University

USA, 1998

Materials and Manufacturing Processes 13, (2), 263-274 Mar. 1998

ISSN: 1042-6914

Country of Publication: USA

Journal Announcement: 9808

Language: ENGLISH

8/3/21 (Item 2 from file: 32)

DIALOG(R) File 32:METADEX(R)

(c) 2002 Cambridge Scientific Abs. All rts. reserv.

1131405 MA Number: 199805-58-0595

Development of a new laser cladding process for manufacturing cutting and stamping dies.

Mukherjee, K ; Hu, Y P ; Chen, C W

Michigan State University

UK, 1998

Journal of Materials Science 33, (5), 1287-1292 1 Mar. 1998

ISSN: 0022-2461

Country of Publication: UK

Journal Announcement: 9805

Language: ENGLISH

8/3/22 (Item 3 from file: 32)

DIALOG(R) File 32:METADEX(R)

(c) 2002 Cambridge Scientific Abs. All rts. reserv.

1104958 MA Number: 199710-52-1813

Wear determination on laser beam coated deep draw dies.

Original Title: [Verschleissermittlung an laserstrahlbeschichteten Tiefziehwerkzeugen.]

Doege, E ; Haferkamp, H ; Burmester, I ; Hamm, F P ; Niemeyer, M

University Hannover

Germany, 1997

Blech Rohre Profile 44, (4), 46-49 Apr. 1997

ISSN: 0006-4688

Country of Publication: Germany

Journal Announcement: 9710

Language: GERMAN

8/3/23 (Item 4 from file: 32)

DIALOG(R) File 32:METADEX(R)

(c) 2002 Cambridge Scientific Abs. All rts. reserv.

0923131 MA Number: 199302-58-0190

Research on the Procedure and Porosity of Laser Cladding WC--Co by Powder Feeder.

Yang, Y ; Yan, Y

Tianjin Institute of Textile Science and Technology

Transactions of Metal Heat Treatment (China) 13, (2), 33-37 1992

ISSN: 0254-587X

Country of Publication: People's Republic of China

Journal Announcement: 9302

Language: CHINESE

8/3/24 (Item 5 from file: 32)
DIALOG(R)File 32:METADEX(R)
(c) 2002 Cambridge Scientific Abs. All rts. reserv.

0772650 MA Number: 89-580791

Theoretical and Experimental Studies of Laser Cladding of Ni--Cr--Al--Hf Alloys With Extended Solution of Hafnium.

Mazumder, J ; Kar, A ; Singh, J

University of Illinois

Conference: The Laser vs. the Electron Beam in Welding, Cutting and Surface Treatment. State of the Art 1987. II, Reno, Nevada, USA, 1-3 Nov. 1987

Publ: Bakish Materials Corporation, P.O. Box 148, Englewood, New Jersey 07631, USA, 1987

263-279

Journal Announcement: 8907

Language: ENGLISH

8/3/25 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2002 Inst for Sci Info. All rts. reserv.

06705840 Genuine Article#: ZL963 No. References: 13

Title: Rapid tooling die cast inserts using shape deposition manufacturing

Author(s): Link GR; Fessler J; Nickel A; Prinz F

Corporate Source: STANFORD UNIV, DEPT MECH ENGN/STANFORD//CA/94305

Journal: MATERIALS AND MANUFACTURING PROCESSES, 1998, V13, N2, P263-274

ISSN: 1042-6914 Publication date: 19980000

Publisher: MARCEL DEKKER INC, 270 MADISON AVE, NEW YORK, NY 10016

Language: English Document Type: ARTICLE (ABSTRACT AVAILABLE)

8/3/26 (Item 1 from file: 94)
DIALOG(R)File 94:JICST-Eplus
(c) 2002 Japan Science and Tech Corp(JST). All rts. reserv.

02805109 JICST ACCESSION NUMBER: 96A0384728 FILE SEGMENT: JICST-E

Rapid Prototyping for Direct Manufacturing of Metallic Parts.

NAKAGAWA TAKEO (1); ANZAI MASAHIRO (2)

(1) Univ. of Tokyo; (2) Riken Inst. of Phys. and Chem. Res.

Optronics, 1996, NO.172, PAGE.114-118, FIG.8, REF.15

JOURNAL NUMBER: Y0019AAI ISSN NO: 0286-9659

UNIVERSAL DECIMAL CLASSIFICATION: 669:621.74

LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan

DOCUMENT TYPE: Journal

ARTICLE TYPE: Commentary

MEDIA TYPE: Printed Publication

8/3/27 (Item 1 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

01271738 W99016512402

Mechanism of dilution in laser cladding with powder feeding
(Aufmischungsmechanismen beim Laserplattieren mit Pulverzufuehrung)

Miyamoto, I; Fujimori, S; Itakura, K

Laser materials processing conf. ICALEO '97. Pt.2, San Diego, USA, 17.-20.11.1997 1997

Document type: Conference paper Language: English

Record type: Abstract

ISBN: 0-912035-56-0

8/3/28 (Item 2 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

01271737 W99016513402
Laser cladding of pre-placed Stellite SF6 powder with a pulsed Nd:YAG laser and optical fibres
(Laserplattieren von in gefraeste Schlitzte eingelegtem Stellite-Pulver SF6 mit gepulstem Nd:YAG- **Laser** und optischen Fasern)
Brandt, M; Emms, SB; Scott, DA; Fangstrom, Y; Johansson, G; Ivarson, A; Engstrom, H
Laser materials processing conf. ICALEO '97. Pt.2, San Diego, USA, 17.-20.11.1997 **1997**
Document type: Conference paper Language: English
Record type: Abstract
ISBN: 0-912035-56-0

8/3/29 (Item 3 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

01271736 W99016514402
Gas- powder laser cladding with electro-magnetic agitation
(Gas-Pulver-Laserplattieren mit elektromagnetischer Anregung)
Kovalenko, VS; Lutay, AM; Anyakin, MS; Mounir, Z
Laser materials processing conf. ICALEO '97. Pt.2, San Diego, USA, 17.-20.11.1997 **1997**
Document type: Conference paper Language: English
Record type: Abstract
ISBN: 0-912035-56-0

8/3/30 (Item 4 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

01271735 W99016515402
Aluminium flame deposition
(**Laser** -Aluminiumpulverplattieren)
Gilkes, J; Shannon, GJ; Watkins, KG; Brown, P; Steen, WM
Laser materials processing conf. ICALEO '97. Pt.2, San Diego, USA, 17.-20.11.1997 **1997**
Document type: Conference paper Language: English
Record type: Abstract
ISBN: 0-912035-56-0

8/3/31 (Item 5 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

01179538 W98010375427
Utilization of cast iron scraps as a raw material for laser - clad chromium carbide hardfacing
Kagawa, A; Ohta, Y
Nagasaki Univ., J; Technol Center of Nagasaki, Ohmura, J
Journal of Materials Science Letters, v17, n2, pp99-101, **1998**
Document type: journal article Language: English
Record type: Abstract
ISSN: 0261-8028

8/3/32 (Item 6 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

01145243 W97106902402

Titel japanisch

(Herstellung von NiCrAlY-Laserplattierungen nach der Methode mit vorherigem Pulverauftrag)

(The formation of NiCrAlY laser cladding with preplaced method)

Iwamoto, H; Sumikawa, T; Nushida, M; Araki, T

Quarterly Journal of the Japan Welding Society, v15, n2, pp267-271, 1997

Document type: journal article Language: Japanese

Record type: Abstract

ISSN: 0288-4771

8/3/33 (Item 7 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management

(c) 2002 FIZ TECHNIK. All rts. reserv.

01115692 M97070405548

The direct metal deposition of H13 tool steel for 3-D components

(Direct Metal Deposition des Werkzeugstahles H13 fuer die Herstellung von Werkzeugen)

Mazumder, J; Choi, J; Nagarathnam, K; Kich, J; Hetzner, D

Univ. of Michigan, Ann Arbor, USA; Caterpillar, USA

JOM - The Journal of the Minerals, Metals and Materials Society, v49, n5, pp55-60, 1997

Document type: journal article Language: English

Record type: Abstract

ISSN: 1047-4838

8/3/34 (Item 8 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management

(c) 2002 FIZ TECHNIK. All rts. reserv.

01106760 M97060355637

Verfahrenskombination aus Fraesen und Laserauftragschweissen zum Fertigen von Spritzgusswerkzeugen. Lasertechnik

(Combined processes. Laser welding and high-speed milling to manufacture injection moulding tools)

Klocke, F; Clemens, U

Fraunhofer-Inst. f. Produktionstechnol. (IPT), Aachen, D

Maschinenmarkt, Wuerzburg, v103, n18, pp32-34, 1997

Document type: journal article Language: German

Record type: Abstract

ISSN: 0341-5775

8/3/35 (Item 9 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management

(c) 2002 FIZ TECHNIK. All rts. reserv.

01100587 E97051243235

Prozessfuehrung bei der Formgebung metallischer Strukturen mittels 3D-Laserstrahl-Auftragschweissen

(Rapid prototyping technologies: Building up of thin metal vertical structures by laser powder cladding. Experimental results)

Haferkamp, H; Bach, F-W; Gerken, J

Laser Zentrum Hannover, D

Laser Magazin, v1335, n2, pp16-20, 1997

Document type: journal article Language: German

Record type: Abstract

8/3/36 (Item 10 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management

(c) 2002 FIZ TECHNIK. All rts. reserv.

01087077 M97030774654

Effect of rare earth cerium on the microstructure and corrosion resistance

of laser clad nickel-base alloy coatings

(Wirkung von Cermetall auf das Mikrogefuege und den Korrosionswiderstand beim Laserstrahlumschmelzen einer Nickellegierung auf unlegiertem Stahl)
Wang, K-L; Zhu, Y-M; Zhang, Q-B; Sun, M-L
Tsinghua Univ., Beijing, China; Univ. of Macau, Macau
Journal of Materials Processing Technology, v63, n1-3, pp563-567, 1997
Document type: journal article Language: English
Record type: Abstract
ISSN: 0924-0136

8/3/37 (Item 11 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

01087068 M97030783654

Parametric studies of laser cladding processes

(Parametrische Studie des Laser - Cladding -Prozesses)
Qian, M; Lim, LC; Chen, ZD; Chen, WL
Nat. Univ. of Singapore, Singapore; Nanyang Technol. Univ., Singapore
Journal of Materials Processing Technology, v63, n1-3, pp590-593, 1997
Document type: journal article Language: English
Record type: Abstract
ISSN: 0924-0136

8/3/38 (Item 12 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management
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01067514 M97011159527

Laser cladding of iron-base alloy on Al-Si alloy and its relation to cracking at the interface

(Laserplattieren hochlegierter Staehle auf Aluminium-Silicium-Legierungen und Auswirkung der Verfahrensparameter auf die Grenzflaechenrissbildung)
Wang, A; Fan, C; Xie, C; Huang, W; Cui, K
Huazhong Univ. of Sci. and Technol., Wuhan, P.R. China
Journal of Materials Engineering and Performance, v5, n6, pp775-783, 1996
Document type: journal article Language: English
Record type: Abstract
ISSN: 1059-9495

8/3/39 (Item 13 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

01066426 E97026587086

Advanced Laser Processing of Materials

(Fortgeschrittene Verfahren des Lasereinsatzes fuer die Materialbearbeitung)
Mazumder, J
Univ. of Illinois, Urbana, USA
IEEE/LEOS 1996 Summer Topical Meetings, Digest, Keystone, USA, Aug 5-9, 1996 1996
Document type: Conference paper Language: English
Record type: Abstract
ISBN: 0-7803-3175-3

8/3/40 (Item 14 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

01017693 W96080123415

Processing of intermetallic compounds for structural applications at high temperature

(Fertigungsverfahren fuer intermetallische Verbindungen fuer die

Anwendung als Bauteil bei hohen Temperaturen)
Uenishi, K; Kobayashi, KF
Osaka Univ., Osaka, J
Intermetallics, v4, nSupplement No. 1, ppS95-S101, 1996
Document type: journal article Language: English
Record type: Abstract
ISSN: 0966-9795

8/3/41 (Item 15 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00986205 M96050137642
Ceramic coatings on titanium alloy by CO2 laser treatment
(Keramische Ueberzuege auf Titanlegierungen durch CO2-Laserbehandlung)
Masse, J-E; Mathieu, J-F
Lab. MecaSurf, Aix-en-Provence, F; Centre Laser Ind. Regional,
Aix-en-Provence, F
Materials and Manufacturing Processes, v11, n2, pp199-206, 1996
Document type: journal article Language: English
Record type: Abstract
ISSN: 1042-6914

8/3/42 (Item 16 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00980539 E96040185245
Weighing-machine controls powder feeder for single-stage laser cladding
(Waageeinrichtung steuert eine Pulverdosierung eine einstufige Laser-Plattierung)
Gruenenwald, B; Hennig, W; Dausinger, F; Nowotny, S
Univ. Stuttgart, D; Fraunhofer Inst. f. Werkstoffphys. a. Schichttechnol.,
Dresden, D
Reports in Applied Measurement, v9, n2, pp41-44, 1995
Document type: journal article Language: English
Record type: Abstract
ISSN: 0930-7923

8/3/43 (Item 17 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00980179 W96046465402
Oxidation resistance of laser cladding by Ni-Cr-Al alloys on carbon and austenitic stainless steels
(Oxidationswiderstand von mit Ni-Cr-Al-Legierungen laserplattierten Kohlenstoff- und austenitischen nichtrostenden Staehlen)
Damborenea, Jde; Conde, A; Larraz, MT
Welding International, v10, n1, pp51-56, 1996
Document type: journal article Language: English
Record type: Abstract
ISSN: 0950-7116

8/3/44 (Item 18 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00968581 M96021189642
Metallographische Charakterisierung beim Laserbeschichten erzeugter Stellite/WC-Verbundschichten
(Metallographic characterisation of Stellite/WC composite layers produced by laser cladding)

Daiss, S; Bischoff, E; Gruenenwald, B
Max-Planck-Inst. f. Metallforsch., Stuttgart, D; Univ. Stuttgart, D
Praktische Metallographie, v33, n2, pp99-111, 1996
Document type: journal article Language: German
Record type: Abstract
ISSN: 0032-678X

8/3/45 (Item 19 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00939630 W95126006400
Fibre optic ND-YAG laser cladding of preplaced hastelloy C powder
(Laserstrahlaufschmelzen einer Hastelloy C Pulverschicht auf einem
C-Mn-Stahlblech mit Hilfe eines Nd-YAG- **Laser** , dessen Laserlicht mit einem
Glasfaserkabel transportiert wurde. wurde)
Brandt, M; Scott, DA; Yellup, JM
CSIRO Lindfield, AUS; CSIRO Woodville, AUS
Surface Engineering, v11, n3, pp223-232, 1995
Document type: journal article Language: English
Record type: Abstract
ISSN: 0267-0844

8/3/46 (Item 20 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00937085 M95116694565
Study on laser cladding metal ceramics on high-speed steel
(Untersuchung zum Laserbewehren mit Metallkeramik auf Schnellarbeitsstahl)
Chen Chuanzhong; Kong Cuirong; Cao Huaihua; Yu Jiahong; Sun Xinjun
Shandong Univ. of Technol., Jinan, China
1994 Internat. Conf. on Laser Materials Processing, a Collection of Tech.
Papers, Chongqing, China, Oct 12-15, 1994 1994
Document type: Conference paper Language: English
Record type: Abstract

8/3/47 (Item 21 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00935750 W95116091400
Titel russisch
(**Die** Erhoehung der Festigkeit der Stahlmarke 30ChGSA bei
schwingdynamischen Belastungen durch eine Laserstrahlbearbeitung)
(Increase of strength of 30ChGSA steel by vibrational load by means of
laser beam machining)
Visneveckaja, IA; Golego, NN; Solovev, AV; Volkov, VS
Izvestija Vuz, Cernaja Metallurgija, v37, n7, pp47-49, 1995
Document type: journal article Language: Russian
Record type: Abstract
ISSN: 0363-0797

8/3/48 (Item 22 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00927079 M95106360584
**Automated workstation for variable composition laser cladding - its use
for rapid alloy scanning**
(Automatisierte Arbeitseinrichtung zur Laserbeschichtung fuer variable
Zusammensetzung und ihre Anwendung fuer eine schnelle
Legierungsveraenderung)
Carvalho, PA; Braz, N; Pontinha, MM; Ferreira, MGS; Steen, WM; Vilar, R;

Watkins, KG
Inst. Superior Tecnico, Lisboa, P; Univ. Liverpool, GB
Surface and Coatings Technology, v72, n1-2, pp62-70, 1995
Document type: journal article Language: English
Record type: Abstract
ISSN: 0257-8972

8/3/49 (Item 23 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00925366 M95080903593

Processing aspects of laser cladding an aluminium alloy onto steel
(Herstellungsaspekte beim Laserbeschichten einer Aluminiumlegierung auf Stahl)

Ellis, M; Xiao, DC; Lee, C; Steen, WM; Watkins, KG; Brown, WP
Univ. of Liverpool, GB; Glacier Vandervell, Strathclyde, GB
ICPR '93 12th INTERN. CONF. ON PRODUCTION RESEARCH, Lappeenranta, Finland,
16-20 August 1993Journal of Materials Processing Technology, v52, n1,
pp55-67, 1995
Document type: journal article Language: English
Record type: Abstract
ISSN: 0924-0136

8/3/50 (Item 24 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
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00900384 M95076162584

Laser cladding using the powder blowing technique
(Laserbeschichtung mit der Pulverblasttechnik)

Yellup, JM
Univ. Liverpool, GB
Surface and Coatings Technology, v71, n2, pp121-128, 1995
Document type: journal article Language: English
Record type: Abstract
ISSN: 0257-8972

8/3/51 (Item 25 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00899098 E95061196284

Rapid manufacturing durch Lasersintern und 3D-Laserstrahl-Auftragschweissen
(Rapid manufacturing by laser sintering and laser cladding)

Haferkamp, H; Alvensleben, Fvon; Gerken, J
Laser Zentrum Hannover, D
Laser und Optoelektronik, v27, n3, pp64-69, 1995
Document type: journal article Language: German
Record type: Abstract
ISSN: 0722-9003

8/3/52 (Item 26 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00865587 W95032114402

Technology for wear resistant inside diameter cladding of tubes
(Technologie fuer das Innenplattieren von Rohren zum Verschleisschutz)

Arlt, AG; Mueller, R
Deutscher Verband fuer Schweisstechnik, Duesseldorf, D
DVS-Berichte, v163, n8, pp203-212, 1994
Document type: Conference paper Language: English
Record type: Abstract

ISBN: 3-87155-468-5
ISSN: 0418-9639

8/3/53 (Item 27 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00863629 W95022235402

Application of laser powder cladding and the risk of residual powder
(Einsatz des **Laser** -Pulverplattierens und das Gesundheitsrisiko von
Pulverresten)
Haferkamp, H; Schmidt, H; Gerken, J; Puester, T
Deutscher Verband fuer Schweisstechnik, Duesseldorf, D
DVS-Berichte, v163, n12, pp475-484, 1994
Document type: Conference paper Language: English
Record type: Abstract
ISBN: 3-87155-468-5
ISSN: 0418-9639

8/3/54 (Item 28 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
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00862253 W95020017450

Laser cladding of Ni-Al bronze on Al alloy AA333
(Laserplattieren einer Ni-Al-Bronze auf die Aluminiumlegierung AA333)
Liu, Y; Mazumder, J; Shibata, K
Univ. of Illinois, Urbana-Champaign, USA; Nissan Motor, Yokosuka, J
Metallurgical and Materials Transactions B, Process Metallurgy and
Materials Processing Science, v25B, n5, pp749-759, 1994
Document type: journal article Language: English
Record type: Abstract
ISSN: 0360-2141

8/3/55 (Item 29 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00859435 W95022090402

Influence on the wear resistance of carbide laser claddings
(Einfluss von mit **Laser** hergestellten Karbidplattierungen auf den
Verschleisswiderstand)
Nowotny, S; Techel, A; Mueller, A; Reitzenstein; Uelze, A
Deutscher Verband fuer Schweisstechnik, Duesseldorf, D
DVS-Berichte, v163, n1, pp252-259, 1994
Document type: Conference paper Language: English
Record type: Abstract
ISBN: 3-87155-468-5
ISSN: 0418-9639

8/3/56 (Item 30 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
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00820169 M94104285568

**Effect of process parameters on the microstructure, geometry and
microhardness of laser - clad coating materials**
(Einfluss der Prozessparameter auf die Mikrostruktur, die Geometrie und
die Mikrohaerte von laserplattierten Ueberzuegen)
Komropoulos, K
Univ. of California, Berkeley, USA
Second ASM Heat Treatment and Surface Engineering Conf. in Europe, Pt. 1,
Dortmund, D, Jun 1-3, 1993 1993
Document type: Conference paper Language: English

Record type: Abstract
ISBN: 0-87849-678-5

8/3/57 (Item 31 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00759869 M94030647671

Titel japanisch

(Neues, mittels Laserplattieren direkt auf Aluminiumlegierung aufgebracht
Verbundmaterial auf Kupferbasis fuer Ventilsitze)
(New copper based composite for engine valve seat directly deposited onto
aluminium alloy by **laser cladding** process)
Kouji Tanaka; Takashi Saito; Yoshio Shimura; Kazuhiko Mori; Minoru Kawasaki
; Mototsugu Koyama; Hiroyuki Murase
Toyota Central R&D Labs., Aichi, J
Journal of the Japan Institute of Metals, v57, n10, pp1114-1122, 1993
Document type: journal article Language: Japanese
Record type: Abstract
ISSN: 0021-4876

8/3/58 (Item 32 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
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00728703 W93100125452

**Influence of processing conditions on geometrical features of laser
claddings obtained by powder injection**
(Einfluss der Herstellungsbedingungen auf geometrische Merkmale von
Laserstrahlplattierungen durch Pulvereinblasen)
Pelletier, JM; Sahour, MC; Pilloz, M; Vannes, AB
GEMPPM-CALFETMAT, Villeurbanne Cedex, F; IUT Le Creusot, F; MMP-CALFETMAT,
ECL, Ecully Cedex, F
Journal of Materials Science, v28, n19, pp5184-5188, 1993
Document type: journal article Language: English
Record type: Abstract
ISSN: 0022-2461

8/3/59 (Item 33 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
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00695187 W93050258427

**Theoretical studies on extended solid solubility and nonequilibrium phase
diagram for Nb-Al alloy formed during laser cladding**
(Theoretische Untersuchungen ueber die erweiterte
Mischkristalloeslichkeit und das Nichtgleichgewichtsphasendiagramm fuer
eine waehrend des Laserplattierens gebildete Nb-Al-Legierung)
Agrawal, G; Kar, A; Mazumder, J
Univ. of Illinois, Urbana, USA
Scripta Metallurgica et Materialia, v28, n11, pp1453-1458, 1993
Document type: journal article Language: English
Record type: Abstract
ISSN: 0956-716X

8/3/60 (Item 34 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
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00693554 M93060725699

Thermal processes in gas- powder laser cladding of metal materials
(Thermische Prozesse in Gas-Pulver Laserbeschichtung von metallischen
Werkstoffen)
Pustovalov, VK; Bobuchenko, DS

Byelorussian State Polytech. Acad., Minsk, Belarus
International Journal of Heat and Mass Transfer, v36, n9, pp2449-2456,
1993

Document type: journal article Language: English
Record type: Abstract
ISSN: 0017-9310

8/3/61 (Item 35 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00677955 W93064394400

Structure and phase composition of cobalt rich coating prepared by laser cladding on low carbon steel

(Gefuege und Phasenzusammensetzung von cobaltreichen Beschichtungen, hergestellt durch Laserplattieren auf einem unlegierten Stahl)

Pizurova, N; Komurka, J; Svoboda, M; Schneeweiss, O

Inst. f. phys. Metallurgie der tschechischen Akad. d. Wissenschaften, Brno, Tschechische Republik

Materials Science and Technology, v9, n2, pp172-175, 1993

Document type: journal article Language: English

Record type: Abstract

ISSN: 0267-0836

8/3/62 (Item 36 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00654533 M93023914599

Titel russisch

(Bestimmung rationeller Bearbeitungswerte fuer die Explosionsplattierung aus Pulver Ch20N80)

Livsic, MI; Komarcuk, IN

1991

Document type: Report Language: Russian

Record type: Abstract

8/3/63 (Item 37 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00637194 M93013404539

New laser - cladding technique for welding of bridge wires in detonators

(Neue Laser -Plattierung-Technik zum Schweissen von Ueberbrueckungsdraehten in Zuendern)

Li, Y; Zhang, Q

Inst. of Optics and Fine Mechanics Changchun, China

Chinese Journal of Metal Science and Technology, v8, n5, pp330-334, 1992

Document type: journal article Language: English

Record type: Abstract

ISSN: 1000-3029

8/3/64 (Item 38 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00636215 W93014038400

Titel japanisch

(Bildung einer Hartplattierungsschicht durch Laser -Beschichtung mit Blaspulver)

(Formation of hardfacing clad by laser cladding with blown powder)

Kirose, A; Kohno, W; Nomura, D; Kobayashi, KF

Osaka Univ., J

Journal of the Iron and Steel Institute of Japan (Tetsu To Hagane), v78,

n10, pp1585-1592, 1992
Document type: journal article Language: Japanese
Record type: Abstract

8/3/65 (Item 39 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00630565 M92123019529
Comparison of properties of coatings produced by laser cladding and conventional methods
(Vergleich der Oberflaecheneigenschaften bei Laserbeschichtung und bei konventionellen Ueberzugsmethoden)
Oberlaender, BC; Lugscheider, E
TU Aachen, D
Materials Science and Technology, v8, n8, pp657-665, 1992
Document type: journal article Language: English
Record type: Abstract
ISSN: 0267-0836

8/3/66 (Item 40 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

00520070 W92017093402
Laser beam cladding of seating surface on exhaust valves
(Laserstrahlplattieren an Oberflaechen von Auslassventilsitzen)
Aihua, W; Zengyi, T; Beidi, Z
Welding Journal, New York, v70, n4, pp106s-109s, 1991
Document type: journal article Language: English
Record type: Abstract
ISSN: 0043-2296

8/3/67 (Item 1 from file: 103)
DIALOG(R)File 103:Energy SciTec
(c) 2002 Contains copyrighted material. All rts. reserv.

04111971 JPN-96-012250; EDB-97-020675
Title: Latest laser working technology in nuclear power field
Author(s): Morishige, Norio (Ishikawajima-Harima Heavy Industries Co. Ltd., Tokyo (Japan))
Source: Genshiryoku Kogyo (Nuclear Engineering) v 42:9. Coden: GKOGAM
ISSN: 0433-4035
Publication Date: Sep 1996
p 14-17
Language: Japanese

8/3/68 (Item 2 from file: 103)
DIALOG(R)File 103:Energy SciTec
(c) 2002 Contains copyrighted material. All rts. reserv.

03976297 DE-96-0G4565; EDB-96-060057
Title: Metallographic characterisation of Stellite/WC composite layers produced by laser cladding
Original Title: Metallographische Charakterisierung beim Laserbeschichten erzeugter Stellite/WC-Verbundschichten
Author(s): Daiss, S. (Max-Planck-Inst. fuer Metallforschung, Stuttgart (Germany). Inst. fuer Werkstoffwissenschaft); Bischoff, E. (Max-Planck-Inst. fuer Metallforschung, Stuttgart (Germany). Inst. fuer Werkstoffwissenschaft); Gruenenwald, B. (Stuttgart Univ. (Germany). Inst. fuer Strahlwerkzeuge)
Source: Praktische Metallographie v 33:2. Coden: PMTLA5 ISSN: 0032-678X
Publication Date: Feb 1996
p 99-111

Language: German; English

8/3/69 (Item 3 from file: 103)
DIALOG(R)File 103:Energy SciTec
(c) 2002 Contains copyrighted material. All rts. reserv.

03853814 DE-95-OGD247; EDB-95-097582

Title: Microstructures and dissolution of carbides occurring during the laser cladding of steel with tungsten carbide reinforced Ni- and Co-hard-alloys

Original Title: Gefuegeausbildung und Karbidaufloesung beim Laserbeschichten von Stahl mit Wolframkarbid-verstaerkten Ni- und Co-Hartlegierungen

Author(s): Luft, A. (Fraunhofer-Inst. fuer Werkstoffphysik und Schichttechnologie, Dresden (Germany)); Techel, A. (Fraunhofer-Inst. fuer Werkstoffphysik und Schichttechnologie, Dresden (Germany)); Nowotny, S. (Fraunhofer-Inst. fuer Werkstoffphysik und Schichttechnologie, Dresden (Germany)); Reitzenstein, W. (Fraunhofer-Inst. fuer Werkstoffphysik und Schichttechnologie, Dresden (Germany))

Source: Praktische Metallographie (Germany) v 32:5. Coden: PMTLA5

ISSN: 0032-678X

Publication Date: May 1995

p 235-247

Language: German; English

8/3/70 (Item 1 from file: 323)
DIALOG(R)File 323:RAPRA Rubber & Plastics
(c) 2002 RAPRA Technology Ltd. All rts. reserv.

00549203

TITLE: APPARATUS AND METHOD FOR FORMING AN INTEGRAL OBJECT FROM LAMINATIONS

AUTHOR(S): Feygin M

PATENT NUMBER: US 5354414 A

PATENT DATE: 19941011

PATENT COUNTRY/KIND CODE: US A

APPLICATION NUMBER: US 671720 (US 671720-1991)

APPLICATION DATE: 19910404

JOURNAL ANNOUNCEMENT: 199507 RAPRA UPDATE: 199513

DOCUMENT TYPE: Patent

LANGUAGE: English

SUBFILE: (R) RAPRA

8/3/71 (Item 1 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
(c) 2002 AMERICAN CHEMICAL SOCIETY. All rts. reserv.

118129812 CA: 118(14)129812a JOURNAL

Process and porosity of laser cladding of tungsten carbide-cobalt by using powder feeding

AUTHOR(S): Yang, Yongqiang; Yan, Yuhe

LOCATION: Tianjin Text. Inst. Sci. Technol., Tianjin, Peop. Rep. China,

JOURNAL: Jinshu Rechuli Xuebao DATE: 1992 VOLUME: 13 NUMBER: 2

PAGES: 33-7 CODEN: JRXUDO ISSN: 0254-587X LANGUAGE: Chinese

8/3/72 (Item 2 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
(c) 2002 AMERICAN CHEMICAL SOCIETY. All rts. reserv.

110217333 CA: 110(24)217333k JOURNAL

Surface treatments of automobile parts by RTM

AUTHOR(S): Ricciardi, G.; Cantello, M.

LOCATION: Ist. Ric. Tecnol. Mecc. Autom., 10080, Vico Canavese, Italy

JOURNAL: Proc. SPIE-Int. Soc. Opt. Eng. DATE: 1988 VOLUME: 957

NUMBER: Laser Beam Surf. Treat. Coat. PAGES: 66-74 CODEN: PSISDG
ISSN: 0277-786X LANGUAGE: English
?

16/3,KWIC/3 (Item 1 from file: 32)
DIALOG(R) File 32:METADEX(R)
(c) 2002 Cambridge Scientific Abs. All rts. reserv.

1297778 MA Number: 200206-54-0477

Adaptive laser aided DMD (direct metal deposition) process control.

Choi, J ; Hua, Y

University of Missouri

Conference: 20th International Congress on ICALEO 2001: Applications of Lasers & Electro-Optics, Jacksonville, FL, USA, 15-18 Oct. 2001

Publ: Laser Institute of America, 12424 Research Parkway, Suite 125, Orlando, FL 32826, USA, 2001

20th International Congress on ICALEO 2001: Applications of Lasers & Electro-Optics Proceedings 730-739

ISSN: 0-912035-73-0

Country of Publication: USA

Journal Announcement: 0206

Language: ENGLISH

16/3,KWIC/4 (Item 2 from file: 32)
DIALOG(R) File 32:METADEX(R)
(c) 2002 Cambridge Scientific Abs. All rts. reserv.

0893214 MA Number: 199205-58-0649

High-Powdered Lasers Gain Ground for Cladding and Hardfacing.

Irving, B

Welding Journal 70. (8), 37-40 Aug. 1991

ISSN: 0043-2296

Country of Publication: USA

Journal Announcement: 9205

Language: ENGLISH

16/3,KWIC/5 (Item 1 from file: 95)
DIALOG(R) File 95:TEME-Technology & Management
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01552957 20010904662

Deposition of graded metal matrix composites by laser beam cladding

Theiler, C; Seefeld, T; Sepold, G

BIAS Bremen Inst. of Appl. Beam Technol., D

Laser Assisted Net Shape Engineering 3, Proc. of the 3rd LANE 2001, Erlangen, D, Aug 28-31, 20012001

Document type: Book chapter; 06 Conference paper Language: English

Record type: Abstract

ISBN: 3-87525-154-7

ABSTRACT:

A technique to generate graded metal-carbide composite materials has been derived from the powder-fed **laser beam cladding** process which involves the line-by-line deposition of layers and enables to **build up** freeform components layer by layer. The initial experimental work focused on the generation of defect free functional coatings and components with various carbide content by...

...are determined. The transfer of these fundamental studies into an industrial application is presented. The cutting-edge of an industrial knife is produced using the **laser beam cladding** process.

16/3,KWIC/6 (Item 2 from file: 95)
DIALOG(R) File 95:TEME-Technology & Management
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01287612 M99020070502

Metal rapid prototyping via laser cladding/generating process

Kathuria, YP

Laser X Chiryu-shi, J
ECLAT, Europ. Conf. on Laser Treatment of Materials, Hannover, D, Sep
22-23, 1998
Document type: Conference paper Language: English
Record type: Abstract
ISBN: 3-88355-263-1

ABSTRACT:

A novel technique for the rapid prototyping of metallic parts by beam technology, which utilizes the concept of layer manufacturing with **laser cladding** -generating process is described. **Powder** material is delivered into the laser beam, thereby it gets molten and deposited onto the substrate. The product constructed through layer by layer scanning in horizontal direction consists of a series of overlapping solidified clad layers. Layer thickness and layer width can be controlled with the **powder** feed rate, processing speed, and the beam spot size. First experiments were carried out using stellite 6, a Co-based alloy **powder**, and with a cw CO₂-laser (P=5KW) as well as with the pulsed Nd-YAG-laser (P(average)=400W). It was shown that in the multilayer cladding structure short interaction time produces smaller **buildup** structure (very fine and fine microstructures, low deposition rate) compared to the large **buildup** structure (coarse structure, higher deposition rate) in the long interaction time.

16/3,KWIC/7 (Item 3 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
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00974647 M96046031554

Rapid manufacturing of metal parts by laser sintering

(Schnelles Fertigungsverfahren fuer Metallteile durch Lasersintern)
Haferkamp, H; Bach, FW; Gerken, J; Alvensleben, Fvon
Laser Zentrum Hannover, D
ISATA, 28th Internat. Symp. on Automotive Technol. and Automation, Rapid Prototyping in the Automotive Industries, Stuttgart, D, Sep 18-22, 1995
Document type: Conference paper Language: English
Record type: Abstract

ABSTRACT:

Among the technologies which are under development for the direct production of metal components, the laser supported techniques **laser sintering** and **laser cladding** have most positive expectations for industrial use. Founded on extensive work in the field of **laser powder cladding** of functional layers, results have been gathered at the Laser Zentrum Hannover concerning the direct manufacturing of metal parts by **laser cladding** and **laser sintering**. In this paper, first results concerning the **build - up** of metal parts by laser sintering are described. During the investigations, the suitability of metals such as cooper, nickel, aluminium and aluminium-bronze alloys for...

16/3,KWIC/8 (Item 1 from file: 103)
DIALOG(R)File 103:Energy SciTec
(c) 2002 Contains copyrighted material. All rts. reserv.

03932715 NEDO-95-950245; EDB-96-016475

Title: Characteristics of laser cladding and its application

Original Title: Laser cladding no tokucho to tekiyo
Author(s): Kutsuna, M. (Nagoya University, Nagoya (Japan). Faculty of Engineering)
Source: Yosetsu Gijutsu (Welding Technique) v 43:9. Coden: YOGIAA
ISSN: 0387-0197
Publication Date: 1 Sep 1995
p 70-78
Language: Japanese

Abstract: This paper summarizes the **laser cladding** technique. This is a

method to alloy and **build up** different materials on metal surfaces by irradiating laser beams to improve corrosion, wear and oxidation resistance in parts. Alloy layers thus formed consist of such metals as Cr, Ni, Mo and W, and oxides, carbides, and intermetallic compounds. The method has the following features: it can **build up** high-melting point materials; brittle material powders including metallic oxides can be used as filler materials; the dilution rate can be controlled easily; heat input...

...little thermal distortion; it suits local cladding; a large output CO₂ laser or YAG laser can be used as a device; influencing factors are the **powder** feeding locations, directions, and amount as the working conditions; **laser - clad** **build - up** materials may include Fe, Ni, Co, Mo, and Ti systems; and the method may cause such defects as pores, cracking, inferior bead appearance, and defective...

?

24/3,KWIC/1 (Item 1 from file: 8)
DIALOG(R)File 8: Ei Compendex(R)
(c) 2002 Engineering Info. Inc. All rts. reserv.

04286414 E.I. No: EIP95112922538

Title: Direct laser metal deposition process fabricates near-net-shape components rapidly

Author: Lewis, Gary K.; Lyons, Peter

Corporate Source: Los Alamos Natl Lab, Los Alamos, NM, USA

Source: Materials Technology v 10 n 3-4 Mar-Apr 1995. p 51-54

Publication Year: 1995

CODEN: MATTEI ISSN: 1066-7857

Language: English

Title: Direct laser metal deposition process fabricates near-net-shape components rapidly

...Abstract: of a high-energy laser beam which is under development at the Los Alamos National Laboratory. It is accomplished without a mold, pattern, or forming die and produces a fully dense metal part that is shaped to within a few thousandths of a centimeter of final tolerance. The DLF process combines computer-aided design and manufacturing, laser cladding, and rapid prototyping technologies to directly deposit metal to form a near-net shaped component from a digitally designed solid model.

Descriptors: Powder metal products; Deposition; Laser applications; High energy lasers; Computer aided design; Computer aided manufacturing; Metal cladding; Rapid prototyping; Computer simulation; Stainless steel

24/3,KWIC/2 (Item 1 from file: 32)
DIALOG(R)File 32: METADEX(R)
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1122572 MA Number: 199803-58-0283

A metallurgical analysis of laser-clad H13.

Koch, J; Hetzner, D; Mazumder, J

University of Illinois

Conference: ICALEO '96. Laser Materials Processing, Detroit, Michigan, USA, 14-17 Oct. 1996

Publ: Laser Institute of America, 12424 Research Parkway, Suite 125, Orlando, FL 32826, USA, 1996

A143-A150 1996

ISSN: 0-912035-54-4

Country of Publication: USA

Journal Announcement: 9803

Language: ENGLISH

24/3,KWIC/3 (Item 2 from file: 32)
DIALOG(R)File 32: METADEX(R)
(c) 2002 Cambridge Scientific Abs. All rts. reserv.

0893214 MA Number: 199205-58-0649

High-Powdered Lasers Gain Ground for Cladding and Hardfacing.

Irving, B

Welding Journal 70. (8), 37-40 Aug. 1991

ISSN: 0043-2296

Country of Publication: USA

Journal Announcement: 9205

Language: ENGLISH

24/3,KWIC/4 (Item 1 from file: 34)
DIALOG(R)File 34: SciSearch(R) Cited Ref Sci
(c) 2002 Inst for Sci Info. All rts. reserv.

08179507 Genuine Article#: 254T2 No. References: 30

Title: Direct materials deposition: designed macro and microstructure

Author(s): Mazumder J (REPRINT); Schifferer A; Choi J

Corporate Source: CATERPILLAR CO,/PEORIA//IL/61629 (REPRINT); UNIV
MICHIGAN,CTR LASER AIDED INTELLIGENT MFG/ANN ARBOR//MI/48109
Journal: MATERIALS RESEARCH INNOVATIONS, 1999, V3, N3 (OCT), P118-131
ISSN: 1432-8917 Publication date: 19991000
Publisher: SPRINGER VERLAG, 175 FIFTH AVE, NEW YORK, NY 10010
Language: English Document Type: ARTICLE (ABSTRACT AVAILABLE)

Abstract: Solid freeform fabrication of engineering materials is now possible using the Direct **Metal Deposition** (DMD) technique. Closed loop optical feedback system for DMD makes realistic components with dimensional accuracy of 0.01 inch. On the other hand, close control...

...is one of the difficult alloys for deposition due to residual stress accumulation from martensitic transformation. However, it is the material of choice for the **die** and tool industry. DMD offers Copper chill blocks and water cooling channels as the integral part of the tool. On the other hand ZrO2 was...

24/3,KWIC/5 (Item 1 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
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01550944 20010905712

Solidification in direct metal deposition by LENS processing

(**Die** Untersuchung von Erstarrungsvorgaengen bei der Direktmetallabscheidung mittels Endform-Laserbearbeitung)
Hofmeister, W; Griffith, M; Ensz, M; Smugersky, J
Vanderbilt Univ., USA

JOM - The Journal of the Minerals, Metals and Materials Society, v53, n9, pp30-34, 2001

Document type: journal article Language: English

Record type: Abstract

ISSN: 1047-4838

Solidification in direct metal deposition by LENS processing

(**Die** Untersuchung von Erstarrungsvorgaengen bei der Direktmetallabscheidung mittels Endform-Laserbearbeitung)

ABSTRACT:

...solid-liquid interface were measured over a range of conduction conditions. The length scale of the molten zone controls cooling rates during solidification in direct **metal deposition**. In LENS processing, the molten zone ranges from 0.5 mm in length to 1.5 mm, resulting in cooling rates at the solid-liquid...

DESCRIPTORS: CORROSION RESISTANT STEEL; TOOL STEEL; NICKEL ALLOYS; TITANIUM ALUMINIUM VANADIUM ALLOYS; **LASER CLADDING**; BOUNDARY SURFACE; CHILL RATE; SOLIDIFICATION; HEAT CONDUCTIVITY; HEAT EXCHANGE; MICROSTRUCTURE

24/3,KWIC/6 (Item 2 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
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01510981 20010506562

Laser cladding of stainless steel with Hastelloy
(Laserstrahlplattieren von nichtrostenden Staehlen mit Hastelloy-Legierungen)

Haemers, TAM; Rickerby, DG; Lanza, F; Geiger, F; Mittemeijer, EJ
INSt. for Advanced Materials, Ispra, I; Delft Univ. of Technol., Delft, NL;
Max Planck Inst. for Metals Res., Stuttgart, D

Advanced Engineering Materials, v3, n4, pp242-245, 2001

Document type: journal article Language: English

Record type: Abstract

ISSN: 1438-1656

Laser cladding of stainless steel with Hastelloy

ABSTRACT:

Die hochkorrosionsfesten Nickellegierungen Hastelloy kombinieren gute mechanische Eigenschaften mit einer ausgezeichneten Korrosionsbestaendigkeit und eignen sich somit hervorragend zum Einsatz in Erdgasbohranlagen fuer Lagerstaetten mit hohem H₂S...

...Hastelloy-Legierungen ist allerdings zu kostspielig. Als kostenguenstige Alternative bietet sich der Einsatz von Rohren aus herkoemmlichen nichtrostenden Staehlen mit Plattierungen aus Hastelloy-Legierungen an.

Die Zusammensetzung und das Mikrogefuege von Hastelloy-Ueberzuegen wurden untersucht, **die** durch Laserstrahlplattieren auf Unterlagen aus dem nichtrostenden Stahl AISI 316 (0.5 % Mn, 2.5 % Mo, 17 % Cr, 11 % Ni) aufgebracht wurden. Hierbei wurde als Plattierung **die** Legierung Hastelloy C-276 (0.02 % C, 2.5 % Co, 15 % Cr, 16 % Mo, 3.7 % W, 5.5 % Fe, Rest Ni) verwendet. **Die** Untersuchungsergebnisse zeigen, dass zur Herstellung einer gut haftenden Hastelloy-Schicht ein Laserstrahl mit ausreichend hoher Leistung von mindestens 3 kW eingesetzt werden muss. Eine zu...

...Dendriten- oder Zellenabstaenden von 2 - 5 Mikrometern. Einige Ausscheidungspartikel wurden gefunden. In der aufgeschmolzenen Grenzschicht kommt es zu einer intensiven Vermischung von Unterlage und Plattierung.

Die Haerte der plattierten Schicht ist gleichmaessig (selbst beim Plattieren in mehreren Lagen) und entspricht der einer herkoemmlichen Hastelloy-Legierung. (VDEh)

DESCRIPTORS: CORROSION RESISTANT STEEL; **CLADDING** ; **LASER BEAM DEPOSITION** ; **PROTECTIVE COATINGS**; **METAL COATINGS**; MICROSTRUCTURE; NICKEL ALLOYS; CORROSION RESISTANT ALLOYS; PRIMARY STRUCTURE; CHROMIUM NICKEL MOLYBDENUM STEEL

24/3,KWIC/7 (Item 3 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management

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01066426 E97026587086

Advanced Laser Processing of Materials

(Fortgeschrittene Verfahren des Lasereinsatzes fuer **die** Materialbearbeitung)

Mazumder, J

Univ. of Illinois, Urbana, USA

IEEE/LEOS 1996 Summer Topical Meetings, Digest, Keystone, USA, Aug 5-9, 1996/1996

Document type: Conference paper Language: English

Record type: Abstract

ISBN: 0-7803-3175-3

(Fortgeschrittene Verfahren des Lasereinsatzes fuer **die** Materialbearbeitung)

ABSTRACT:

...accepted in manufacturing include: nano-meter powder generation by laser ablation; Angstrom to micron size deposition by Laser Vapor Deposition (LCVD); mm scale coating by **laser cladding** ; and surface modification and meter scale components by direct **metal deposition** . The laser is a tool which can provide energy density varying from 0,001 W/cm² to 10exp12/watts cm exp2. They have a wavelength...

24/3,KWIC/8 (Item 4 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management

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00979374 W96030133450

Microstructure of bonding zones in laser - clad Ni-alloy-based composite coatings reinforced with various ceramic powders

(Mikrogefuege der Haftgrenzschichten in laserplattierten

Nickellegierungsschichten, **die** mit verschiedenen keramischen Pulvern verstaerkt wurden)

Pei, YT; Ouyang, JH; Lei, TC
Beijing Polytech. Univ., Beijing, P.R. China; Harbin Inst. of Technol.,
Harbin, P.R. China
Metallurgical and Materials Transactions A, Physical Metallurgy and
Materials Science, v27A, n2, pp391-400, 1996
Document type: journal article Language: English
Record type: Abstract
ISSN: 1073-5623

Microstructure of bonding zones in laser - clad Ni-alloy-based composite coatings reinforced with various ceramic powders

(Mikrogefuege der Haftgrenzschichten in laserplattierten
Nickellegierungsschichten, die mit verschiedenen keramischen Pulvern
verstaerkt wurden)

ABSTRACT:

Microstructure of the bonding zones (BZs) between **laser - clad**
Ni-alloy-based composite coatings and steel substrates was studied by means
of scanning electron microscope (SEM) and transmission electron microscope
(TEM) techniques. Observations indicate...

...A colony structure of eutectic is found in the BZ of SiC/Ni-alloy
coating in which complete dissolution of SiC particles takes place during
laser cladding. The immiscible melting of ZrO₂, and Ni-alloy powders
induces the stratification of ZrO₂/Ni-alloy coating which consists of a
pure ZrO₂ layer in...

DESCRIPTORS: LASER BEAM **DEPOSITION**; DISPERSION STRENGTHENED **METALS**;
SIMPLE STEEL; ALLOY STEEL; NICKEL ALLOYS; METAL LAYERS; SCANNING ELECTRON
MICROSCOPY; TEM...

24/3, KWIC/9 (Item 5 from file: 95)
DIALOG(R) File 95:TEME-Technology & Management
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00859435 W95022090402

Influence on the wear resistance of carbide laser claddings

(Einfluss von mit Laser hergestellten Karbidplattierungen auf den
Verschleisswiderstand)

Nowotny, S; Techel, A; Mueller, A; Reitzenstein; Uelze, A
Deutscher Verband fuer Schweisstechnik, Duesseldorf, D
DVS-Berichte, v163, n1, pp252-259, 1994

Document type: Conference paper Language: English
Record type: Abstract
ISBN: 3-87155-468-5
ISSN: 0418-9639

ABSTRACT:

Mittels Laserstrahl-Beschichtungsverfahren wurden unter Einsatz von
agglomerierten Nickelumhuelkten WC/Co und NiBSi-Pulvern verschleissfeste
Schichten auf Stahlsubstrat herstellt, zur Bestimmung der
Verschleissfestigkeit wurden **die** Proben unter Definiertem Druck dem
Abrieb von SiC- bzw. Al₂O₃-Volumen an einer rotierenden Stahl- bzw.
Gummischeibe unterzogen. Bei beiden Pruefungen wurde der Einfluss der...

...sowie der Korngroesse des Schleifmittels auf Volumenverlust und
Mechanismen des Verschleisses, d.h. Abrieb, Zerstoe rung und Ausbrechen der
Karbidpartikel, festgestellt. Daraus lassen sich Richtlinien fuer **die**
optimale Anpassung solcher Beschichtungen an verschiedenen Beanspruchungen
im praktischen Einsatz ableiten. (Hassler, M.)

DESCRIPTORS: LASER BEAM **DEPOSITION**; **CLADDING**; TUNGSTEN CARBIDE;
METAL POWDER; WEAR RESISTANCE; WEAR MECHANISMS; GRAIN SIZE; CODE OF
PRACTICE; STEEL; WEAR

?

Set	Items	Description
S1	137	((LASER(2N)CLAD?) OR (METAL(2N)DEPOSITION?) OR (BUILDUP OR BUILD()UP)) AND (DIE? ? OR CUTTING) AND LASER? ? AND POWDER
S2	104	RD (unique items)
S3	76	S2 AND PY<1999
S4	16304	BASE()MATERIAL
S5	1	S3 AND S4
S6	207528	BLADE? ?
S7	4	S3 AND S6
S8	72	S3 NOT S7
File	2:INSPEC	1969-2002/Jul W1 (c) 2002 Institution of Electrical Engineers
File	6:NTIS	1964-2002/Jul W3 (c) 2002 NTIS, Intl Cpyrght All Rights Res
File	8:Ei Compendex(R)	1970-2002/Jul W1 (c) 2002 Engineering Info. Inc.
File	25:Weldasearch	1966-2002/Jan (c) 2002 TWI Ltd
File	31:World Surface Coatings Abs	1976-2002/Jun (c) 2002 Paint Research Assn.
File	32:METADEX(R)	1966-2002/Aug B1 (c) 2002 Cambridge Scientific Abs
File	33:Aluminium Ind Abs	1968-2002/Jul (c) 2002 Cambridge Scientific Abs
File	34:SciSearch(R) Cited Ref Sci	1990-2002/Jul W2 (c) 2002 Inst for Sci Info
File	35:Dissertation Abs Online	1861-2002/Jun (c) 2002 ProQuest Info&Learning
File	63:Transport Res(TRIS)	1970-2002/Jun (c) fmt only 2002 Dialog Corp.
File	65:Inside Conferences	1993-2002/Jul W1 (c) 2002 BLDSC all rts. reserv.
File	67:World Textiles	1968-2002/Jun (c) 2002 Elsevier Science Ltd.
File	94:JICST-EPlus	1985-2002/May W3 (c)2002 Japan Science and Tech Corp(JST)
File	95:TEME-Technology & Management	1989-2002/Jul W1 (c) 2002 FIZ TECHNIK
File	96:FLUIDEX	1972-2002/Jun (c) 2002 Elsevier Science Ltd.
File	99:Wilson Appl. Sci & Tech Abs	1983-2002/Jun (c) 2002 The HW Wilson Co.
File	103:Energy SciTec	1974-2002/Jun B2 (c) 2002 Contains copyrighted material
File	105:AESIS	1851-2001/Jul (c) 2001 Australian Mineral Foundation Inc
File	108:Aerospace Database	1962-2002/Jun (c) 2002 AIAA
File	118:ICONDA-Intl Construction	1976-2002/Jun (c) 2002 Fraunhofer-IRB
File	119:Textile Technol.Dig.	1978-2002/Jul (c) 2002 Inst.of Textile Technology
File	144:Pascal	1973-2002/Jul W1 (c) 2002 INIST/CNRS
File	238:Abs. in New Tech & Eng.	1981-2002/Jun (c) 2002 Reed-Elsevier (UK) Ltd.
File	240:PAPERCHEM	1967-2002/Jun W3 (c) 2002 IPST
File	248:PIRA	1975-2002Jul W2 (c) 2002 Pira International
File	252:Packaging Sci&Tech	1982-1997/Oct (c) 1997 by Fraunhofer-ILV, Germany
File	293:Eng Materials Abs(R)	1986-2002/Jul (c) 2002 Cambridge Scientific Abs
File	315:ChemEng & Biotec Abs	1970-2001/Dec (c) 2002 DECHEMA
File	323:RAPRA Rubber & Plastics	1972-2002/Aug (c) 2002 RAPRA Technology Ltd

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 (c) 2002 Reed Business Information Ltd.
File 370: Science 1996-1999/Jul W3
 (c) 1999 AAAS
File 399: CA SEARCH(R) 1967-2002/UD=13627
 (c) 2002 AMERICAN CHEMICAL SOCIETY
File 434: SciSearch(R) Cited Ref Sci 1974-1989/Dec
 (c) 1998 Inst for Sci Info
File 14: Mechanical Engineering Abs 1973-2002/Jul
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File 50: CAB Abstracts 1972-2002/Jun
 (c) 2002 CAB International
File 51: Food Sci.&Tech.Abs 1969-2002/Jun W3
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File 53: FOODLINE(R): Food Science & Technology 1972-2002/Jul 10
 (c) 2002 LFRA
File 354: Ei EnCompassLit(TM) 1965-2002/Jul W1
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?

Set	Items	Description
S1	1259041	DIE
S2	399217	CUTTING (January 1969)
S3	2014843	LASER
S4	134234	CLAD OR CLADDING
S5	781610	POWDER
S6	6040	S1(3N)S2
S7	6989	S3(3N)S4
S8	4	S5(S)(S6 AND S7)
S9	4	RD (unique items)
S10	13	S6 AND S7
S11	4	S10 AND S5
S12	101292	BUILDUP OR BUILD()UP
S13	953	S5(S)S12
S14	11	S13(S)S7
S15	11	S14 NOT S11
S16	8	RD (unique items)
S17	95588	METAL? ?(3N)DEPOS?
S18	173	S17 AND S7
S19	127440	TOOTH?
S20	29	S1(S)S2(S)S19
S21	0	S17 AND S20
S22	0	S6 AND S18
S23	12	S1 AND S18
S24	9	RD (unique items)
File	2:INSPEC 1969-2002/Jul W1	(c) 2002 Institution of Electrical Engineers
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File	8:Ei Compendex(R) 1970-2002/Jul W1	(c) 2002 Engineering Info. Inc.
File	25:Weldasearch 1966-2002/Jan	(c) 2002 TWI Ltd
File	31:World Surface Coatings Abs 1976-2002/Jun	(c) 2002 Paint Research Assn.
File	32:METADEX(R) 1966-2002/Aug B1	(c) 2002 Cambridge Scientific Abs
File	33:Aluminium Ind Abs 1968-2002/Jul	(c) 2002 Cambridge Scientific Abs
File	34:SciSearch(R) Cited Ref Sci 1990-2002/Jul W2	(c) 2002 Inst for Sci Info
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File	94:JICST-EPlus 1985-2002/May W3	(c)2002 Japan Science and Tech Corp(JST)
File	95:TEME-Technology & Management 1989-2002/Jul W1	(c) 2002 FIZ TECHNIK
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File	103:Energy SciTec 1974-2002/Jun B2	(c) 2002 Contains copyrighted material
File	105:AESIS 1851-2001/Jul	(c) 2001 Australian Mineral Foundation Inc
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File	118:ICONDA-Intl Construction 1976-2002/Jun	(c) 2002 Fraunhofer-IRB
File	119:Textile Technol.Dig. 1978-2002/Jul	(c) 2002 Inst.of Textile Technology
File	144:Pascal 1973-2002/Jul W1	

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 File 315: ChemEng & Biotec Abs 1970-2001/Dec
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 (c) 2002 Engineering Info., Inc.
 File 81: MIRA - Motor Industry Research 1980-2002/June
 (c) 2002 MIRA Ltd.
 File 92: IHS Intl.Stds.& Specs. 1999/Nov
 (c) 1999 Information Handling Services

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Set	Items	Description
S1	2	AU='CHERNG TZYH CHANG':AU='CHERNG TZYH CHYANG'
S2	8	AU='ZHANG YU':AU='ZHANG YU JUN'
S3	8	S1:S2
S4	2	S1 AND S2
S5	6	S3 NOT S4
S6	564644	DIE
S7	1	S5 AND S6
S8	64301	LASER? ?
S9	74542	POWDER
S10	10539	CLAD OR CLADDING
S11	202	S6 AND S8 AND S9 AND S10
S12	201	S11 NOT S3
S13	176272	MACHIN?
S14	61285	CUTTING
S15	93	S12 AND S13
S16	60	S12 AND S14
S17	113	S15 OR S16
S18	389	S8(3N)S10
S19	16	S17 AND S18
S20	1391	HARDER AND SOFTER
S21	0	S17 AND S20
S22	1	S8 AND S9 AND S10 AND S20
S23	62	S9(3N)S10
S24	8	S17 AND S23
S25	3	S24 NOT S19
S26	0	S12 AND S20
S27	1583	S14(3N)S6
S28	2	S18 AND S27
S29	1	S28 NOT S3

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Set	Items	Description
S1	2	AU='CHERNG TZYH CHANG':AU='CHERNG TZYH CHYANG'
S2	8	AU='ZHANG YU':AU='ZHANG YU JUN'
S3	8	S1:S2
S4	2	S1 AND S2
S5	6	S3 NOT S4
S6	564644	DIE
S7	1	S5 AND S6
S8	64301	LASER? ?
S9	74542	POWDER
S10	10539	CLAD OR CLADDING
S11	202	S6 AND S8 AND S9 AND S10
S12	201	S11 NOT S3
S13	176272	MACHIN?
S14	61285	CUTTING
S15	93	S12 AND S13
S16	60	S12 AND S14
S17	113	S15 OR S16
S18	389	S8(3N)S10
S19	16	S17 AND S18
S20	1391	HARDER AND SOFTER
S21	0	S17 AND S20
S22	1	S8 AND S9 AND S10 AND S20

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Set	Items	Description
S1	4	AU='CHERNG T':AU='CHERNG TZYH-CHANG'
S2	16	AU='ZHANG YU' OR AU='ZHANG YU ET AL.'
S3	1	S1 AND S2
S4	18	S1:S2 NOT S3
S5	176427	DIE
S6	2	S4 AND S5
S7	541904	LASER?
S8	72669	CLAD?
S9	573008	POWDER?
S10	3	S5 AND S7 AND S8 AND S9
S11	2	S10 NOT S1:S2

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